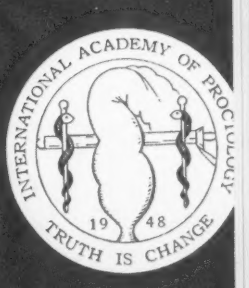
THE AMERICAN JOURNAL of Proctology

610.5
A6
J86
P95
v.3
no.3

OFFICIAL PUBLICATION OF THE INTERNATIONAL ACADEMY OF PROCTOLOGY

Amebiasis Diagnosis and Treatment
Anesthesia for Anorectal Surgery
Anorectal Complications in OBG
Postoperative Bowel Management
Preventive Proctology
Carcinoma of the Colon
Pre- and Postoperative Care in Anorectal Surgery
Fistulas
Editorials
Therapeutic Abstracts



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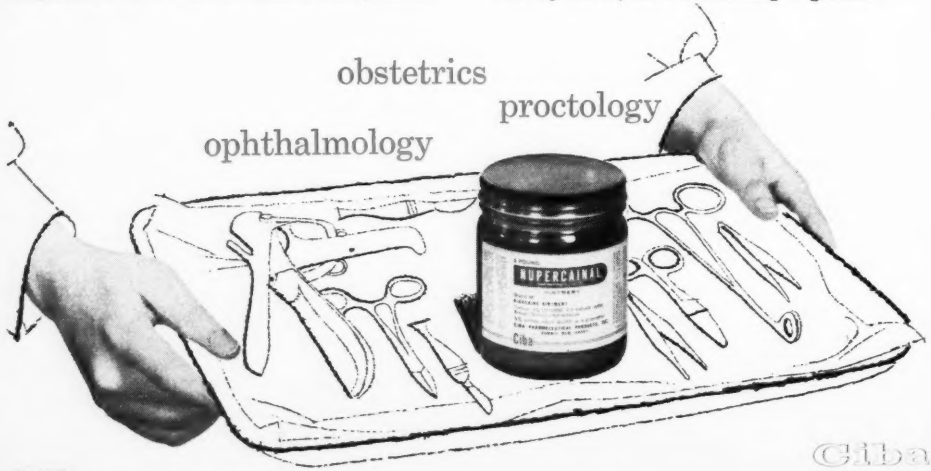

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Opinions expressed in articles are those of the authors and do not necessarily reflect the opinion of the Academy or the Journal.

The American Journal of Proctology is published quarterly by The American Journal of Proctology, Inc. with publication offices at 34 North Crystal Street, East Stroudsburg, Pa. Business and advertising offices at 676 Northern Boulevard, Great Neck, N. Y. Editorial offices at 43-55 Kissena Blvd., Flushing, N. Y. Subscription rate United States and Pan-American Union, 1 year, $4.00; 2 years, $7.00 (Foreign $4.50 and $8.00). Entered as second class matter at the Post Office at East Stroudsburg, Pa.

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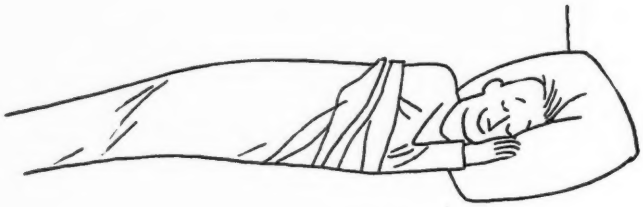

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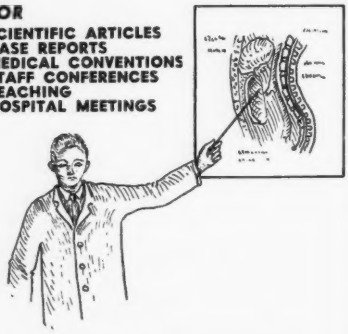

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LETTERS TO THE EDITOR

Hemostatic Agents

Dear Doctor:

Do you advise the use of a hemostatic agent such as Oxycel routinely after rectal surgery? Thank you.

R. L. P., M.D.
Jacksonville, Fla.

My own practice does include the use of oxidized cellulose after every rectal operation. I find that this hemostatic agent offers considerable advantage over other types of newer hemostatic agents such as fibrin foam, thrombin, or the gelatin sponge. However, any of these hemostatic materials may be employed.

Careful surgical hemostasis, however, is still a primary requisite. In preventing excessive blood loss during surgery and the possibility of such blood loss postoperatively, Oxycel does offer invaluable supplementary aid. This is particularly important if immediate or early ambulation is an objective.—Editor.

Complement Fixation Test

Dear Doctor:

What is the present status of the complement fixation test in lymphogranuloma venereum? Does it have much use? Your reply would be appreciated.

E. J. R., M.D.
Houston, Texas

The complement fixation test for lymphogranuloma venereum has been studied extensively without much success until the work of McKee, Rake and Shaffer. These investigators reported that that the serum

—Continued on page 252

President's Page

It is a pleasure and a privilege to greet you as your new President. You and I have much in common since our membership in the International Academy of Proctology is mute testimony of our acceptance and devotion to the high ideals upon which it is founded.

It is heartening to observe the strength of the roots the Academy has put down in its comparatively brief span of life, the brevity of which is indicated by the fact that I am its Vth president.

I have used the Roman numeral purposely for in recent years this "V" has represented something more than numerals—a spirit of Victory expressed by the up-turned fingers. What a divine spark it was which prompted the indomitable Churchill to make the inspiring gesture which inflamed the imaginations of men of good-will throughout the world!

Pursuing the fascinating "V" trail, we are led from Victory to Veritas, which brings us back to the Academy again and its motto, for Veritas is Truth and "Truth is Change".

In a mood of whimsey we are tempted to translate the "V" into aspects which pertain to the Academy and, again, we are off on the intriguing pursuit of words and find ourselves in noble company—

VIRILITY—the amazing strides which the Academy has made leave no doubt of its hardiness and vigor;

VISION—this was required in order to conceive the possibility and the practicability of transcending sectionality and nationality to band together a group of men whose common purpose was to learn and to teach. (This idea finds vivacious and vibrant expression as those of you who have attended the meetings will affirm. They are open to any reputable physician who wishes to attend and he is perfectly free to

ask questions and to express himself. A humorous digression here—I am prompted to paraphrase the great Caesar—"Veni, Vidi, Voce!").

VERDANT—here again we touch on the life-stream which makes the Academy a vital force in our lives and in our profession;

VALIANT—America, itself a Nation built by pioneers, can vouch for the courage which is required to launch out into new fields;

VIGOROUS—all that we have said so far is indicative of the powerful surging of life within it.

There are countless words which are applicable, along with the attributes outlined here, but let us consider another phase of the Academy's nature.

Virility, Valiant, Vigorous have been mentioned—these have a masculine connotation. Since the very source of Life is male and female —"Useless, each, without the other—", and in order that this picture of the Academy should be well-rounded, let us imagine a feminine side to its nature and what would be more logical than the delineation of the Academy as a ship? Where could we find a more apt "vessel" than the use of this simile in which are borne the dreams, and hopes, and ambitions of men from boyhood into manhood; even on and on into manhood when hopes, dreams, and ambitions are voiced with the expression, "When my ship comes in."

The good ship, "IAP", set sail with us as her crew; her cargo is the gold of high resolve and dedication to the lofty principles of our profession; her sails are filled with the breath of our endeavors, but what of her sailing?

"There is a tide in the affairs of men which,
taken at its flood, leads on to fortune."

We believe that she is riding such a flood tide but her sails must be kept filled to assure her coming into the harbor where she would be. If we do that we are reasonably certain of our 'fortune'; of our 'victory'.

So, we find ourselves ending on the note with which this began—"V" for victory. To attain it, let us stay on the "Qui Vive"!

EDGAR SCOTT, M.D.

Diagnosis and Treatment of Amebiasis*

F. C. VAL DEZ, M.D.*
I. L. SCHWEITZER, M.D.
Chicago, Ill.

Amebiasis is not an uncommon condition in the northern part of this country. In some areas there are a large number of cases. This has made most physicians more alert in the diagnosis. It should be more widely recognized that diarrhea is not necessary for a clinical diagnosis; however, most of the patients who present themselves for diagnostic procedure do have a dysentery. This discussion will include the cases we have seen during the past twenty-eight years, and will be concerned with *Endameba histolytica* only as a causative agent.

Amebic hepatitis may occur when there is no dysentery or it may occur at the same time. It is highly probable that hepatitis occurs before a clinical diagnosis can be made. Klatzkin[1] reported 69 cases out of 748. Spellberg and Ziven[2] found in a series of 58, fifteen cases with amebic hepatitis. One of our most interesting cases was a man, 57 years old, who gave no history of previous pain in the liver region, or of a diarrhea and who had an acute, severe pain in that region of two hours' duration. He had a slightly enlarged liver that was tender. There was a temperature of 103.6°, leucocytosis of 18,200. Liver function tests, gallbladder dye, and gastrointestinal x-ray revealed normal findings. There were no other conditions found that might cause liver enlargement. Examination of the stools revealed the trophozoites of *E. histolytica.* After treatment there has been no recurrence over a five-year period.

Soderman[3] emphasizes the opinion that liver involvement should be diagnosed before a frank hepatitis occurs. We hoped a few years ago that the liver function tests would be helpful in making such an early diagnosis possible. These tests have been practically of no value to us in early or late diagnosis. Soderman[3] reports the same experience while Shute[4] found that 50.6 per cent of 73 cases gave evidence of liver damage in a positive Hanger's cephalin cholesterol flocculation test. There was a rapid reversal on antiamebic treatment.

We know of no definite clinical picture that is diagnostic of amebic hepatitis. It is, therefore, necessary for the clinician to be on the alert for any suggestive signs or symptoms. The complement fixation test has been very definitely improved in recent years until it is now much more dependable. When properly done we have found it of great value.

Amebic abscess of the liver, single or multiple, is usually manifested by pain in

* Read before the Fourth Annual Convention of the International Academy of Proctology, Chicago, Ill., June 6, 7, 8, 1952.

* Associate Clinical Professor, Loyola University, Chicago, Illinois.

the region of the liver, epigastrium, right abdomen or the back. There is a high leucocyte count, and the temperature usually continues high. It may assume different patterns but is elevated every day. Tenderness over the liver is fairly constant, and there is a tenderness on deep percussion at the costovertebral angle. There is an enlargement of the liver downward, also upward. The upward enlargement causes an elevation of the diaphragm which is revealed by x-ray. The abscess may rupture into the lung causing physical findings that are easily demonstrated. It may also rupture into the intestine, stomach, and rarely into the kidney, peritoneum and blood vessels.

Amebiasis may occur in other organs but is not frequent. Spellberg and Ziven[4] reported in 1948, a case of cerebellar amebic abscess which was said to be the second one reported.

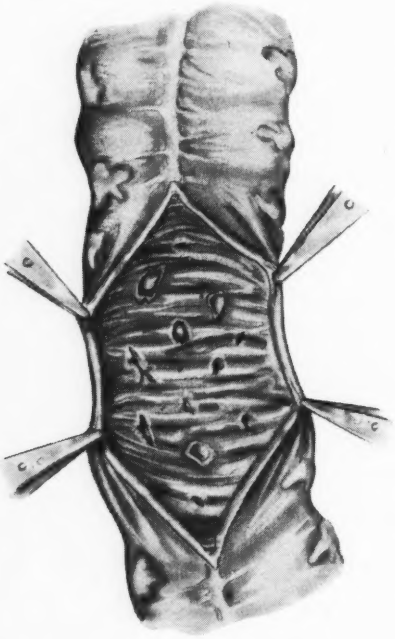

Fig. 1. Amebic ulcers of colon.

Fig. 2. Sigmoidoscopic view of ulcers of colon.

The diagnosis of amebic dysentery may be easily made; however, there are some cases that require time and patience. Demonstration of the trophozoites of *E. histolytica* in the stools is the most convincing evidence. It has become routine to give the patient a purge and examine the stools soon after they are passed. Unless the hospital is prepared to do this better results may be obtained in a laboratory. At least six stools should be examined before a negative result is declared. If there is strong clinical evidence that the dysentery is on an amebic basis, we repeat the tests making sure that the specimen is warm. Rarely the mucus on the end of an examining finger, if checked immediately, will reveal the trophozoites. The cysts are looked for and there are various methods used in staining the slides. D'Antoni,[5] Faust,[6] Felsenfeld and Young,[7] and others have outlined a technic to be followed in staining the slide.

The *E. histolytica* can be cultured, and should be done if unsuccessful in the preceding test. Foltz and Howard found that a culture was better than direct smear both in finding and identifying the ameba. That has not been our experience.

Roentgen study of every case has been our routine for a quarter century, but we have not found evidence to convince us that a diagnosis of amebiasis can be made from such a study. Wilbur and Camp[8]

report such changes as spasm, dilatation, relaxation, and abnormal patency of the ileocecal valve; inflammatory induration with "coning" defects. Arendt and Coheen[9] studied the mucosol pattern in 32 cases and concluded that changes in the cecal area and lower ascending colon, combined with deviation from the normal in the sigmoid, suggested prolonged infection. X-ray is of great value in ruling out pathological conditions that cause a more diagnostic pattern.

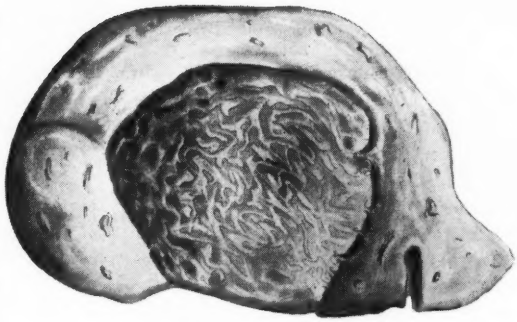

Fig. 3. Amebic abscess of the liver.

Sigmoidoscopic examination has been very valuable to us as a diagnostic procedure. It is generally recognized that amebic lesions are found earlier in the cecal region. Amebic lesions in the rectosigmoid region may not persist after treatment as long as those in the right colon. For this reason proctoscopic examination as a prognostic procedure has its limitations; however, we continue to do them. It is essential that the examining physician have a knowledge of the typical picture of ametic ulcers as well as that of ulcerative colitis and that of the complicated picture which may be caused by a secondary infection. For example, one of us (F.C.V.) was asked to see a young man 19 years of age. A sigmoidoscopic examination had been made and a beautiful description of amebic ulcerations was elicited, but a diagnosis of ulcerative colitis was made, and the patient had been under treatment for ulcerative colitis.

In order to have a clean field to examine, an enema should be given until the water returns clear. The amebic ulcers are usually of the "button-hole" type, elliptic or circular looking like small mounds. The tops of these ulcers are gray and grayish yellow due to central necrosis. They are ulcerated and excavated when the necrotic top sloughs. The edges of the ulcers are elevated. The most important part of the procedure is to look for the normal mucosa between the ulcerations that does not bleed easily when swabbed.

It has been found desirable to examine, at the time of the sigmoidoscopic examinations, some of the mucus obtained from the crapings. Microscope and other materials needed are made available where the examination is done. We have frequently been rewarded by finding the *E. histolytica.* Rail,[10] Jackson and Cooper[11] have found such a procedure of value in making a diagnosis. Shookhoff[12] thinks the value of the sigmoidoscopic examination is overemphasized. It should be re-emphasized that the typical picture may have variations particularly those caused by secondary infection.

There are very few pathological conditions that are blessed with so many medications that cure as amebiasis. Emetine is still used successfully in hepatic amebiasis. Our patients with liver involvement are hospitalized, because we have learned from sad experience that toxic reactions from emetine can be serious. One grain of emetine is given daily for seven days. If the intestines are involved we follow this with the treatment outlined later. In the severe cases chloroquin 0.5 gm. is given daily for seven days starting one week after the treatment for intestinal amebiasis.

Our results with this treatment have been satisfactory with no recurrence of symptoms. Conan[13] treated 6 patients with hepatic amebiasis successfully with cholorquin. Later he concluded that it was a safe, effective drug, and as effective as emetine without the toxic complications. Soderman and Doerner[14] warn against the therapeutic trial of chloroquin or emetine.

Milibis has been used by many. Conn[15] treated 36 cases and there were four failures following one course of treatment. There were no toxic symptoms. Brown reports one case of arsenical encephalitis in a suspected alcoholic, and a mild exfoliative dermatitis in another patient. He treated 25 cases with cure after 12 weeks of observation. Dennis et al[17] treated 34 cases with milibis with 31 cures. Soderman and Beaver have recently reported most excellent results with this drug. One of the most recent drugs is a combination of Milibis and chloroquin.

Intestinal amebiasis is the most common type seen. We have found it necessary to use various combinations of the many medications in some cases, however, we have started all our patients on a routine treatment making changes only when necessary. Our routine is carbazone 0.25 gm. three times daily for 7 days. This is followed by Vioform 0.25 gm. three times daily for 10 days. No further specific medication is given and after 3 weeks the dianostic procedure is repeated.

In the cases with severe diarrhea emetine is used also. It is recognized that emetine may help the diarrhea, but it does not kill the trophozoites.

The most important part of the treatment of amebiasis is examination subsequent to the first course of treatment. Recurrences are not infrequent. We usually check each patient at intervals of 2 to 4 months for 2 years. Bargen's remarks are well taken when he says that persistence, adequacy, and timing of drug therapy are essential.

Whether emetine and chloroquin should be given to every case on the assumption that there may be a subclinical hepatitis is a question that causes a wide variation of opinion. The answer will be left to each one to decide after the study of the findings.

Diet as in all diarrheas is an essential part of the management. One consisting of the smallest amount of residue is indicated. We begin with cereal gruels, milk toast, rice, and tea, adding as rapidly as possible all the bland foods. Later fruit juices and all the foods in a low residue diet are allowed. In our experience proteins should be given as much as possible, especially in the severe cases. Knox's gelatine powder every two hours has been well tolerated by our patients.

Fluids should be given in adequate amounts. If not tolerated by mouth fluids should be given parenterally. Microcytic anemia is quite common in amebiasis and iron should be given. Occasionally the diarrhea is aggravated by iron and you are confronted with a therapeutic problem.

Fig. 4. The mucosa and superficial part of the submucosa of the colon have been replaced by a layer of necrotic debris with poorly preserved inflammatory cells. The amebas are seen infiltrating the submucosa.

Blood transfusions will help. Vitamins are needed and should be given for a long time.

Most all the antibiotics have been used, also numerous combinations with varying results. Aureomycin and terramycin have apparently given the best results. More time will be necessary to evaluate the value of these drugs in the treatment of amebiasis. We have used most of them at some time, but only when there was a secondary infection. There will probably be fewer complications if these drugs are used.

Summary

We have urged that amebiasis be diagnosed when dysentery is not present which will require an alertness for symptoms and findings; a treatment that has given satisfactory results over a period of many years is outlined with references to other treatments; and the value of proctoscopy as a diagnostic aid is commended.

We have found no drug so far that is a perfect one for all cases of amebiasis.

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30 North Michigan Avenue

Anesthesia for Anorectal Surgery: A Status Evaluation

MAX S. SADOVE, M.D.
LEONARD F. KOWALSKI, M.D.
Chicago, Ill.

Anesthesia for anorectal surgery presents only a few problems that are different from anesthesia in other areas of the body. These problems are chiefly that of the inaccessibility of the area, position of the body, and the fact that the area is usually to be considered a contaminated one. Other than that, anesthetic agents for surgery of this region should be considered essentially as those for other areas. It may be stated that there is no ideal drug technique that will satisfy all individuals under all circumstances, but it would be interesting to mention the factors that should be considered in the ideal technique. The ideal anesthetic should satisfy the patient, the surgeon, and the anesthetist and should possess all of the following characteristics:

1. Safety.—The agent should be safe and have little toxicity both locally and generally. One should be able to use it with a high degree of oxygen and with little danger of damage to the patient.
2. Minimal Side Reactions.—Side reactions should be minimal, that is, there should be no blood pressure fall and no nausea or vomiting. It should affect the pulse, the blood pressure and the respiration very little. There should be little local irritation or tissue damage in the area of injection or in the areas of inhalation.
3. Rapid Induction.—Induction should be rapid, pleasant and with little excitement. In other words, the patient should not find it unpleasant, nor should the surgeon or the anesthetist. It should take only a few moments to put the patient to sleep or to render an area anesthetic.
4. Non-Explosive.—It's obvious that any agent that is explosive carries the dangers always inherent in this type of agent.
5. Simplicity.—Ideally the agent should be simple, require no special technique, no special knowledge, and no special equipment.
6. Inexpensive.—It's only logical that the more expensive the agent is the less desirable it is.
7. No Deterioration.—There should be no deterioration. Drugs that have to be kept under special precautions or stored under special precautions, in that they deteriorate, are not to be trusted as a group.

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8. Rapid Emergence.—There should be a rapid and pleasant emergence. A drug that leaves a long hangover is certainly not to be desired.
9. Easy Control.—One should be easily able to give a dosage and maintain a dosage of anesthesia that is satisfactory to all concerned.
10. Pleasant.—The agent should be pleasant to the patient and to all concerned in the operation. A very unpleasant odor is certainly not desirable from an over-all standpoint. There should be no paraesthesia or irritation from the "local agents."
11. Pain Relief.—The drug should provide pain relief in itself. A drug that merely provides sleep requires relatively larger doses as a generality, and the patient is more apt to need a combined anesthesia rather than a simple inhalation that renders him sleepy. Pain relief is one of the essences of anesthesia.
12. Relaxation.—One should be able to give relaxation in the areas where relaxation is required.
13. Areflexia.—There should be no danger of reflexes from the area in which the surgeon is working.

In summary, it may be stated that no anesthetic agent known to medical science today fulfills all of these requirements. It may also be stated that the closest approach to these ideal desires are met by probably a combination of general and regional anesthetic techniques.

Another philosophy that may be important to emphasize for the group of anorectal patients is that as a generality these procedures should be considered elective, and it is definitely erroneous to consider these techniques as relatively minor. There is no such thing as a minor surgical procedure. Death is as permanent, as lasting, as devastating whether the operation be for a hemorrhoid or for a carcinoma of the esophagus. In fact, one could say it's much more devastating.

It must be emphasized that the preoperative and postoperative preparation of these patients should be consistent with good medical practice. As a group, these patients are over premedicated and are rendered less safe for operative procedures, and the preoperative preparation is frequently incomplete. The positions frequently used for operations in patients of this type are definitely damaging to the cardio-respiratory mechanism. The obese patient who is put either in the Buie or the acute lithotomy position has a marked limitation of his respiration, and it is a relatively short time before there is also an effect on the circulatory mechanisms. It is to the advantage of all concerned that the surgeon sacrifice a little bit of comfort and ease of working when the relatively poor risk patient who is obese is brought to the operating room. The obese patient would probably be best done in the lithotomy position without acute flexion of the hips, and with the legs spread widely rather than acutely flexed, since there is less pressure on the abdomen and, in turn, less limitation of respiration. The Buie position with acute Trendelenburg in the obese, markedly aged, or markedly hypertensive patients is fraught with danger from a cardio-respiratory and a vascular standpoint. It is beyond the scope of this paper to go into a greater discussion of these particular factors than we have done at present. Good, sound, physiologic approach to these problems is the only answer—respiration should be free and not limited in any way.

Regional Anesthesia Some new regional anesthetic agents have come into the scientific horizon in the last few years which offer the surgeon or anesthetist definite advantages. First among these is lidocaine (Xylocaine).* Xylocaine is a local anesthetic agent which has definite advantages and some disadvantages over some of the present agents in use today. For xylocaine may be said the following things: (a) the agent acts rapidly; (b)

the anesthesia is of a profound nature, giving more a true anesthesia than an analgesia; (c) there is a definite spreading factor so that the number and efficiency of the blocks are markedly increased; (d) local irritation of the tissues is relatively slight; (e) the duration of the anesthetic is something in the range of approximately that of .1% to .15% tetracaine** or approximately 2 times that of an equivalent strength of procaine. In fact, this may be said to be a conservative estimate of the duration of this particular local anesthetic agent.

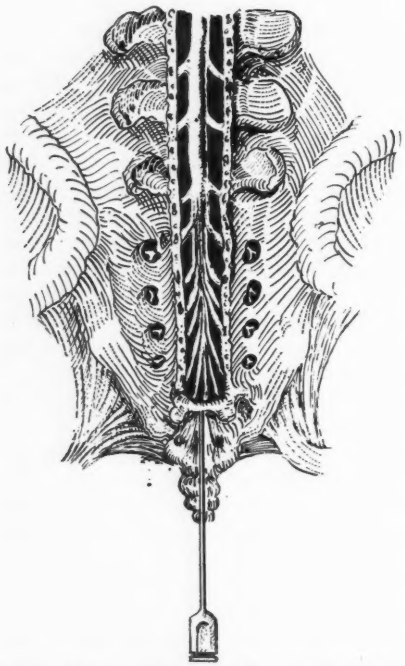
The disadvantages to xylocaine are its relative increased cost and a slight increase in over-all toxicity when one compares it with procaine. That is, one will see more reaction certainly from 2% xylocaine than one will with 2% procaine. It should be kept in mind that the volume of this agent, the rate of injection, and the concentration of the drug should be kept at as low a concentration as is consistent with the operation at hand. In other words, only ½% should be used when only local infiltration is done; where a field block is done 1%; where regional blocks are done 1½%, and the volume should be kept in the appropriate range. The dose range can only be approximated —½% approximately 100 cc.; 1%—50 cc.; 1½%—30 cc. This drug is to be strongly recommended because of its rapidity of action, definiteness of spread, and its marked over-all efficiency.

Another new agent, relatively speaking, is pontocaine or tetracaine. It is not that this agent is new but rather that it is new for this agent to be used in local infiltration techniques. Tetracaine is now being used in local infiltration in concentrations from .05% to as high as .25%. As a generality when this agent is being used for infiltration techniques where large volumes are required, the concentration of .075% to as high as .1% is used. Where volumes of approximately 50 cc. are required and deep, permanent, long acting anesthesia is required, concentrations of approximately .15% are frequently used. Where the very small quantities are used, probably in the region of 10 to 15 cc., .25% may be used, but this should be administered slowly, cautiously, and care should be taken to see that the drug is not injected intravenously.

It must be emphasized here, as in all regional techniques, that the convulsive, the respiratory, and cardiac types of reactions are seen less frequently if epinephrine is added. It should also be emphasized that the amount of epinephrine to be added to these agents should be carefully measured with a tuberculin syringe, not guessed at with the so-called dropper, and

* Xylocaine is the trade name for lidocaine, Astra Pharmaceutical Co., Worcester, Mass.
** Pontocaine is the trade name for tetracaine, Winthrop-Stearnes Inc., New York, N. Y.

FIG. 1



In caudal anesthesia, needle penetrates the posterior sacrococcygeal ligament to enter the inferior aperture of the sacral canal.

the concentration should be in the vicinity of 1:250,000 since less than this may not be effective and more than this may cause reactions to the epinephrine.

All local anesthetic agents would best be prepared from crystals, and the solution made immediately prior to the injection, the epinephrine being added at that time.

Efocaine* is another new agent that has recently come on the medical horizon. This agent is a substitute for the old in-oil mixtures of various types for the acquiring of long duration of anesthesia. Efocaine also should be seriously considered by men in this specialty. It has the following characteristics that recommend itself to one:

First and foremost, it is capable of giving anesthesia for periods as long as 2 weeks, as short as 2 days, but as a general average, from 3 to 7 days in our experience. This agent is a mixture of procaine hydrochloride and procaine base and butyl-p-aminobenzoate in a water-miscible, non-oil vehicle, the vehicle being polyethylene and propylene glycols. It is so arranged that the concentration of the anesthetic agents, chiefly the butyl-p-aminobenzoate, when it comes in contact with the tissues, is quickly released from the solution in what one might call a microscopic suspension in the tissues.

It can provide excellent anesthesia and we recommend it for bilateral pudendal blocks with the use of xylocaine or tetracaine for the field-type block. We are still a little hesitant in using this agent in large quantities under the skin, since we know that the bases are somewhat hygroscopic, and from the microscopic picture it does show signs of irritation. We feel that it would be much better to use this agent for a regional block rather than as a local infiltration agent. However, it would not be damaging, except very rarely, unless put too superficially or into an inflamed area. It is definite that this agent does have the advantage of not having oil for a base. This will diminish the likelihood of granulomas, sterile abscesses, and the like. It is a much more logical way of suspending an agent than were the old in-oil solutions. Even this in our experience has a fair degree of variation, but from a clinical standpoint we are quite satisfied with this agent, especially in such areas as the intercostal, paravertebral blocks and similar procedures. We have only used it in a few caudals and found it to be relatively satisfactory there.

Another new agent is Americaine.* This is a solution of benzocaine in a glycol base, and it is put up in both a solution and an ointment. We find that the degree of anesthesia, the freedom from irritation, and the marked duration makes this preparation one that can be recommended for those who would use topical type preparations for the relief of pain.

Recently into being came the so-called saddle block anesthesia. This saddle block in reality is nothing more than a low spinal anesthetic which is performed with the patient in a sitting position. We have definite feelings in this matter. They are as follows:

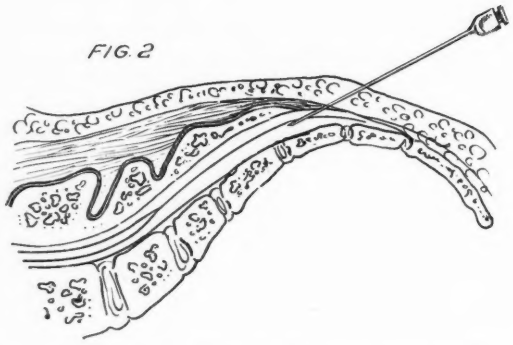
The older, debilitated, and cachectic individuals should be done cautiously under saddle technique, especially where premedication has been heavy or in those instances where the individual is weak from any cause. We fear the vertigo from this sudden change of position and the upright position has caused many of these individuals to have a drop in blood pressure, nausea, etc. Past experience indicates that we can adequately do a low level spinal with the patient in a reverse Trendelenburg position. However, the saddle block anesthetic is a very safe procedure. It is one that can be depended upon, one that rarely fails, and one that rarely gives any difficulty with the one exception—headaches. One must be pre-

* Efocaine is the trade name of a product of the E. Fougera Co., New York, N. Y.

* Americaine is the trade name of a product of the Arnar-Stone Laboratories, Inc., Evanston, Illinois.

pared to accept the complication of approximately 6 to 14% headaches where ever one does spinal anesthesia. Especially is this true in the saddle technique. It is our clinical impression that there is a higher incidence of headache after saddle type block than there is even after the routine type spinal. We might mention here that in approximately 15,000 spinals administered under our (M.S.S.) care in the last 6 years, we have seen none of the neuritic phenomena that are discussed by many individuals. In fact, in our opinion saddle technique is a very safe and efficient technique if one is aware and takes into consideration the danger of the fall and the fact that one is doing a technique that requires care. It is not a technique that one should use lightly; that is, the anesthetic equipment should be checked, sterility should be maintained at even higher levels than is maintained for surgical instruments, and it is poor technique to do a spinal anesthetic and then do the operation. Also, the patient with a spinal should be carefully watched—the level of anesthesia, the blood pressure, pulse, respiration being checked every 5 minutes.

FIG. 2



Median sagittal section showing caudal anesthesia.

The ability to inject into the spinal canal does not constitute a knowledge of spinal anesthesia. Also, it must be emphasized that at hand must always be oxygen, means of administering artificial respiration, means of supporting the blood pressure, etc. Not only does this apply to spinal anesthesia, but it should apply to all types of anesthesia. Means must be at hand for adequately combating potential hazards of any and every technique.

Epidural anesthesia and caudal anesthesia have now had sufficient time to become crystalized in the minds of most of us. I think it can be briefly stated that caudal anesthesia has definite advantages and disadvantages over other techniques. Broadly speaking, this is our appraisal of it.

Caudal and epidural anesthesia require definite skill that can only be acquired by careful observation, training and inquiry into the subject. It has a definite advantage that it is free from the headaches seen from spinal anesthesia. It has a disadvantage in that it requires a special skill. It had until recently the disadvantage of a rather slow onset in the occasional case. Where one uses a warm solution of approximately 1¼% xylocaine the rate of anesthesia onset is truly remarkable. We have seen numerous cases that could have been operated upon within 2 minutes after the end of the injection. As a generality, however, most cases are actually ready for their operative procedure by the time the patient is wheeled into the operating room and the preparation for surgery is completed. Yet, we should like to emphasize that this is a very hazardous procedure unless one is prepared to supplement caudal should there be a failure. One of the disadvantages of the caudal anesthesia is that regardless of the individual who is doing it, as high as 5% will fail if for no other reason than the anomalies of the areas involved.

Epidural anesthesia lends itself well to

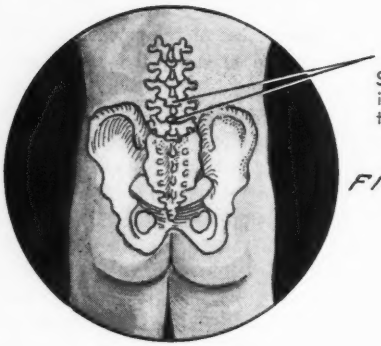
pylonidal work, but we feel that in reality unless one sits the patient up for a definite period of time, no less than 5 to 8 minutes, the percentage of failures will be slightly greater from epidural than from a caudal approach. However, it has the advantage that it can be used in those cases in which there is marked inflammation in the anorectal area. The blood pressure fall is just as great, if not greater, with this form of anesthesia than with spinal anesthesia. We have seen more reactions from epidural anesthesia, both from a vasomotor and from a local anesthetic toxicity standpoint than we have had from almost any other type of anesthesia. But, in most instances where individuals have taken adequate training, adequate time and preparation, it gives an excellent anesthesia, good relaxation, areflexia, freedom from pain, and in general is an excellent anesthetic for anorectal surgery.

With regard to spinal anesthesia, there are 2 recent developments that may be called to your attention. One is the so-called 2 needle technique wherein one utilizes approximately a 20 gauge needle as an introducer through which is introduced a 24 or 25 gauge needle. Thus, one has a very small hole in the dura. This markedly diminishes the chances of leakage and hypotensive type headache sequaela. It must be mentioned, however, that this technique is slightly more difficult in that one rarely sees a flow through the needle and usually has to aspirate through the needle because of its fine caliber.

Another recent development that has had a chance to stand the test of time is the addition of epinephrine to various local anesthetic agents. The addition of epinephrine markedly increases their duration, but the following should be noted: the addition of epinephrine to the anesthetic agent increases the duration but also increases the chance that the agent will diffuse to higher levels, and it should be fixed in the minds of all using this technique that the agent is still available for movement should the individual cough, strain or be handled roughly. Where procaine under ordinary conditions may be considered to be fixed after 10-20 minutes, where tetracain may be considered to be fixed after 35 or 40 minutes or an hour, epinephrine markedly prolongs the period which one should consider the agent nonfixed. It must also be remembered that the dose of the anesthetic agent should be definitely diminished with this technique. We prefer to use approximately ¼ cc. epinephrine in the spinal anesthetic

FIG. 3

Positioning patient for spinal anesthesia.



Spinal anesthesia is introduced between L-3 and 4 or L-4 and 5.

FIG 4

solution. One should be positive that the needle is in the subarachnoid space prior to injecting the epinephrine because this amount administered epidurally may cause reactions. We feel where one is using a heavy solution, one should encourage a slightly head-up position for at least a couple of hours when epinephrine is used, because we have found that this anesthetic has lasted as long as 7 to 8½ hours with relatively small doses; and we feel that one should stay on the side of caution with regard to position of the patient. This should naturally include the transportation from the table to the cart and in placing the patient in bed.

Inhalation There is very little new in the inhalation sphere for the proctologist with the exception of trichloroethylene (Trimar).* This agent is a rapid inducing agent of relatively low toxicity, having vagal-like phenomena which precludes the use of spinephrine and which is capable of supplementing nitrous oxide with excellent efficiency. This agent is a liquid which can be volatilized with the nitrous oxide rendering the nitrous oxide induction both rapid and pleasant, and it is truly remarkable with its relative infrequency of nausea and vomiting, the excellent period of analgesia subsequent to the operation, and the ease of control of the depth and plane of anesthesia. Truly, there are some disadvantages to the drug which are chiefly within the sphere of the anesthesiologist, that is occasionally these patients develop a tachycardia or tachypnea at which time of course the agent should be either discontinued or the technique changed. Yet, in our series it has been relatively infrequent that we have had to discontinue the trichloroethylene-nitrous oxide technique. It has another tremendous advantage in that it is a non-explosive technique, and one can, therefore, give the patient an inhalation type anesthesia with a quick and pleasant nitrous oxide induction, and then one is able to give adequate analgesia and sleep with this combination of trichloroethylene and nitrous oxide. The emergence is rapid and pleasant with a residual analgesia. This technique lends itself well to a combination with a local or regional form of anesthesia. Actually, if one uses this combination, the operating conditions should be satisfactory to the anesthetist, the surgeon and the patient.

Since we are discussing inhalation agents, it may not be too far afield to mention the intravenous techniques.

Pentothal It's a shame that pentothal is so safe a drug. It seems as though any fool who can pick up a syringe can now give an anesthetic. It would have been far better to have had an agent that is a little less safe; then less people who are not qualified would not administer this agent. Pentothal alone for rectal surgery is certainly to be condemned. A very good technique is the use of some form of regional anesthesia that is by itself effective, in conjunction with an intravenous administration of pentothal produces light sleep and the regional protects from reflexes, pain, and produces relaxation. Or better still would be a regional anesthetic

* *Trimar* is the trade name for trichloroethylene, Ohio Chemical Co., Madison, Wisconsin.

combined with a pentothal-nitrous oxide or nitrous oxide-trichloroethylene (Trimar technique). The patient awakes immediately from the anesthesia and is not depressed nor is his physiology disturbed.

Curare has recently come into the picture of the postoperative treatment of the anorectal-type surgery in that one gives sufficient dosage of curare to diminish muscular tone in the irritated area. Many report excellent results. Before anyone uses curare they should be acquainted with the signs and the methods of combating overdose, and know its pharmacology.

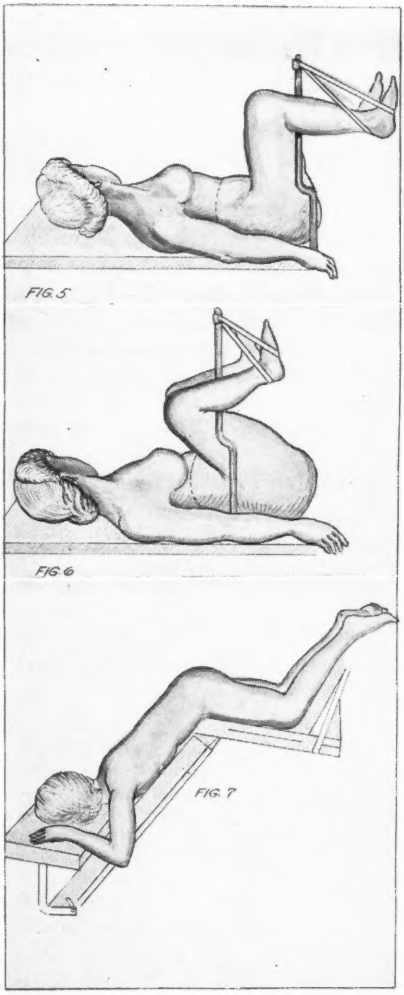


Fig. 5. The obese patient is best done in the lithotomy position without acute flexion of hips.

Fig. 6. The obese patient in the acute lithotomy position has a marked limitation of his respiration.

Fig. 7. The Buie position with the acute Trendelenburg is dangerous from a cardio-respiratory and vascular standpoint.

Summary

In summary we have discussed the factors involved in the ideal anesthetic agent and presented our feelings in most of the standard and newer techniques. We feel that the ideal anesthetic, of course, is that which meets the specifications enumerated by us previously. Unfortunately, there is no ideal anesthetic agent. The ideal anesthetic should be tailor-made for the individual at a specific time in the hands of particular individuals rather than saying one technique or agent is ideal.

✚

Sigmoidorectal Intussusception—A Common Clinical Syndrome

Two cases of sigmoidorectal intussuception are described and treatment outlined in an article by Granet in *Rev. Gastroenterol.* [*19*:478, June, (1952)].

In addition to other measures, hydrophillic preparations such as psyllium, methylcellulose, etc. are administered in sufficient and frequent dosage to produce a firm, slippery stool of large size. This bulky stool mass fills and dilates the distal sigmoid. It slips through the rectosigmoidal junction readily and easily to completely fill the ampulla of the rectum, thereby forestalling sigmoidal invagination.

Anorectal Complications

The Relationship of Complications Encountered in Obstetrics and Gynecology

HARRY O. MARYAN, M.S., M.D.
Chicago, Ill.

It is not within the domain of the gynecologist or obstetrician to practice proctology, but both are vitally interested in the anatomy, physiology, pathology and associated conditions of the anorectal region.

The normal relations of the pelvic organs to the tissues supporting them are so involved that it is hard to visualize them when repairing the injuries resulting from parturition. Gynecologic lesions necessitate the same definite processes of repair as other surgical lesions and the same anatomical accuracy should be adhered to. This makes it necessary for the surgeon to have a clear picture in his mind of the structures which comprise the pelvic floor as well as their relation to the three canals which pass through them, descending from above downwards.

The central point (Fig. 1) of the perineum[1] lies at the base of the urogenital diaphragm between the vaginal and anal orifices. At this central point seven perineal muscles meet and fuse. It is this fusion point that is in a very vulnerable position during parturition, being easily torn. The muscles which blend at the central point are:

The sphincter ani externus
The two levatores ani muscles
The two transverse perinei muscles
The bulbo cavernosus muscle
The recto-urethralis muscle

The uterus normally lies at right angles to the vagina, with the fundus just above the pelvic brim and the cervix on a level with and adjacent to the ischial spines. The cervix is fixed, but the body lies free in the pelvic cavity and is extremely mobile.

Nature prefers muscles to ligaments as supports, for muscles exhibit tone, they can contract and relax and can adjust themselves to the varying needs of the body. The uterus has, however, no direct muscular supports and yet it is a remarkable fact that, except for accidents at parturition or some congenital defect (*spina bifida occulta*), prolapse of the organ is almost unknown.

The uterus and genital canal may be regarded as retained at their proper level by a combination of three sets of structures, any one of which may be damaged without prejudice to the other two sets. It must be clearly understood that it is a combination of the three sets that controls the normal position of the uterus, and of the three, the second or middle group, constituted by the levatores ani is by far the most important. The supports of the uterus can be classified anatomically as direct and indirect or upper, middle or lower supports:

Read before the Fourth Annual Convention of the International Academy of Proctology, Chicago, Ill., June 6, 7, and 8, 1952.

Direct or upper supports:
- The vagina
- The pelvic connective tissue and fascia forming the:
  - pubocervical ligaments
  - transverse ligaments of the cervix
  - uterosacral ligaments
- The broad ligaments
- The round ligaments

Indirect or middle supports:
- The levatores ani and coccygei

Indirect or lower supports:
- The urogenital diaphragm
- The central point of the perineum

The middle and most important support is formed by the levatores ani muscles; as long as they remain strong and firm, all these viscera will be retained inside the pelvis. If for any reason their medial margins are separated, lacerated or atrophied, a weak spot must be formed in the floor of the pelvis through which the bladder, uterus, vagina, or rectum, singly or collectively may herniate.

The lower supports are the perineal body and urogenital diaphragm. As long as this is firm and intact, it supports the orifice of the vagina and converts it into a valve-like opening. As this opening is pitched forward, and as the intraabdominal pressure is directed downwards at right angles to it, the counter pressure exerted by the perineal body tends to close the vaginal orifice more firmly. But if it is badly lacerated or stretched, this support is absent and there is nothing to prevent the lower end of the vagina from everting and carrying with it a portion

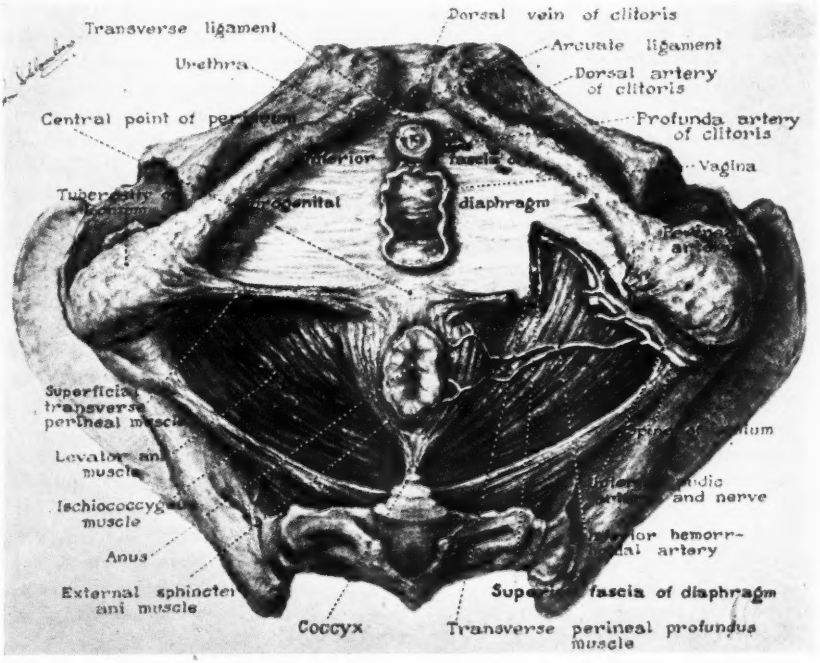


Fig. 1. Showing central point of the perineum with deep perineal fascia. Urogenital diaphragm perforated by urethra and vagina. Pelvic diphragm freed from pelvic fascia, perforated by anus, Levatores ani, or pelvic floor, external sphincter ani, and ischiorectal fossa. Prone to injury during labor.

of the posterior wall of the bladder (forming an early cystocele) or the tissue in front of the rectum (forming a rectocele). This may take place even though the levatores ani are intact.

In analyzing the above facts one sees that any or all of these supporting layers may be impaired in their action. The displacement of the pelvic viscera will be limited according to the degree of integrity of the remaining layers.

Many pregnant women are troubled by hemorrhoids during the antenatal period, especially during the last trimester, during the second stage of labor, and during the puerperium. This is due to the steady increasing pressure that is exerted on the common iliac veins, causing increased pressure within all its tributaries. Hemorrhoids are more common in multigravidas than in primigravidas. The usual symptom during the antenatal period is bleeding during defecation; on the other hand, the hemorrhoids have become thrombosed or may protrude through the anal orifice causing pain and discomfort. It has been the author's policy to be conservative in the management of this condition. To date, I have not performed a hemorrhoidectomy during pregnancy or during the puerperium. I feel that the proper care of the bowels is most important in prevention and treatment. Eastman[2] states that the injection treatment is rarely employed during pregnancy. He also states that if bleeding is persistent, hemorrhoidectomy under local anesthesia may be required.

Uterovaginal prolapse or hernia is one of the most frequent conditions encountered in a gynecological practice. Obstetrical operations, simple mid-plane, or especially difficult mid-plane forceps to occiput posterior positions and breech extractions, are responsible for a definite number of cases. Prolapse also occurs in women whose tissues are lax and inelastic and do not involute satisfactorily after a perfectly normal delivery, without any apparent injury to the soft tissues. Nulliparous prolapse caused by an abnormally deep cul-de-sac of Douglas, a congenital defect, accounts for a small number of cases. This hernia in its descent, brings down the uterus and bladder anteriorly and the rectum posteriorly.

It has been assumed that with the constant gradual improvement taking place in obstetrics, the number of prolapse cases would be reduced, and this improvement during the last quarter of a century seems to have resulted in a definite decrease of such disorders. Although an episiotomy or a prophylactic forceps are commonly performed today, they have acted somewhat as a definite protection to the supporting structures of the female pelvic organs. Be that as it may, uterovaginal hernia or prolapse has not as yet become an infrequent occurrence.

Uterine prolapse itself is not responsible for loss of life, but it is a source of untold discomfort and suffering. Although palliative measures, such as pessaries, may give temporary relief and are useful in old and debilitated women, a cure may be obtained only by surgical measures. The fundamental factors, according to Phaneuf,[3] to be considered in determining the surgical approach to a given case of uterovaginal herniation or prolapse are five in number:

1. Age of patient.
2. Possibility of future pregnancies.
3. Extent of the prolapse.
4. Size of the uterus.
5. Presence or absence of co-existing disease.

Obviously, therefore, the best results are obtained by applying the most suitable method for the particular patient under treatment. Phaneuf, in his practice, has employed seventeen methods for radical cure of uterovaginal prolapse or herniation in a series of women numbering over 1,000 cases.

When the rectum protrudes through the pelvic floor, we encounter hemorrhoids, prolapse of the hemorrhoids, prolapse of the rectum, and procidentia. These cases

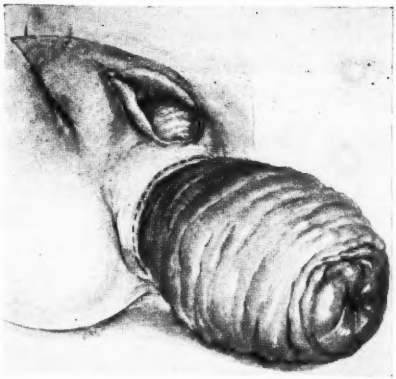


Fig. 2. Herniation of rectum through pelvic floor. A rectocele is shown bulging through posterior vaginal wall. Dotted line shows line of incision along pectinate line or just inside of external sphincter. (from Barrett)

are considered in proctology texts without any mention that they are herniae or that there is any connection between the pelvic floor and rectal support or its repair.

Genitourinary protrusion and rectal protrusion are both herniae. They are both through the same portion of the abdominal wall, the caudal portion, and they are both through the same muscle, generally through separate clefts, but occasionally the vaginal and rectal cleft have become one.

There are also pelvic floor injuries which extend through the sphincter ani or rectum itself. In these instances we have a definite impairment of the pelvic floor, which also affects the support of the genitourinary structures, but the impairment affects the function of the rectum and anus. It is unpredictable which structures will be the most involved in the secondary impairment, but interrelation of the impairment is positive and permanent until reconstruction can be accomplished.

The primary injury[4] may first affect mostly the muscle in the anterior triangle, but as the rectocele develops, straining of the same muscle around the rectum causes the levator ani muscle to lose its grasp upon the rectum, the rectal cleft through the pelvic floor is widened and under the severe strain of a fall or heavy lifting, a rectum that presented a rectocele, or herniation through the vaginal cleft, now experiences a herniation through the posterior cleft, a condition which has been misnamed "prolapse of the rectum", which term ignores the main disease and leads to rectal surgery, when the chief fault is enlargement and loosening of the pelvic floor opening, the real reason the rectum develops its pathologic condition.

The protrusion of the lower bowel through the anal orifice (Fig. 2) is commonly spoken of as a prolapse. Much study has been given as to the cause of these conditions and as a result many writers now consider this a herniation of the colon and rectum through the protective membranes of the pelvis, thence outward through the anal opening.

Alexis Moschowitz,[5] in 1912, advanced the theory that this condition should be called a hernia. He describes this as a condition in which the entire rectum with the mucous membrane in its normal relationship to other coats has protruded through the anus and has lost its normal relationship to the surrounding structures. He also mentions another condition in which the mucous membrane only has protruded through the anus, while the remaining coats of the rectum are in normal relationship with the surrounding structures. He believed that this condition is properly spoken of as "prolapse of the mucous membrane of the rectum". Forty years ago, in an article published in 1912, Moschowitz[5] advanced the suggestion that a massive rectal prolapse resulted from a sliding hernia of the anterior wall of the rectum at the level of the cul-de-sac of Douglas or rectovesical pouch. He also made another important observation: "If, after reducing the prolapse, the patient strained while the examining finger is pressed anteriorly in the lower rectum, the prolapse would not recur; whereas, if

pressure were made posteriorly, the prolapse recurred immediately."

Three years previous to Moschowitz' paper, in 1909, Channing Barrett,[6] in his paper "Herniae Through the Pelvic Floor," states that in dealing with prolapse (herniation) of the rectum we should look upon it as an acquired or congenital weakness of the pelvic floor (levator ani muscles) and instead of doing a plastic operation upon the lower part of the mucous membrane we should look to a reconstruction of the levator ani muscles and the reattachment of the rectum to the levator ani muscles.

Two schools of thought regarding the method of approach to the problem have developed. Both have reported supposedly good results. There are operators who prefer to operate these structures through the abdominal approach and those who feel that the vaginal or perineal approach is more efficacious.

Moschowitz makes the abdominal approach and with the patient in the extreme Trendelenburg position the rectum is pulled up and held taut. A series of silk sutures in a purse-string manner are passed around the cul-de-sac, beginning at its deepest portion and continuing as far as possible, so as to obliterate the pouch of Douglas. An attempt is made to include in the suture the pelvic fascia.

Roscoe R. Graham[7] reports cases in which he opens the abdomen through a left rectus incision. After the rectum is drawn up in position he makes an incision in the cul-de-sac, and by locked mattress sutures, brings together, anterior to the rectum, the levatores from each side, thus forcing the rectum back into the curve of the rectum. In addition, he anchors the lateral walls of the rectum to the fascia of the levatores. He reports excellent results with this seemingly rather difficult procedure. It is his contention that massive rectal prolapse is a sliding hernia of the anterior rectal wall through the anal canal. He also confirmed Moschowitz's anterior and posterior rectal pressure test by applying it to his three cases.

In the three cases reported by Graham, two in males and one in a female, the prolapse started in childhood and had gradually increased in size until it occurred not only during defecation, but also when the patient walked. In two patients the prolapse assumed such magnitude as to constitute a major disability at 25 years of age. The third case was able to carry on until 42 years of age. In none of the three patients was the prolapse less than six inches in length.

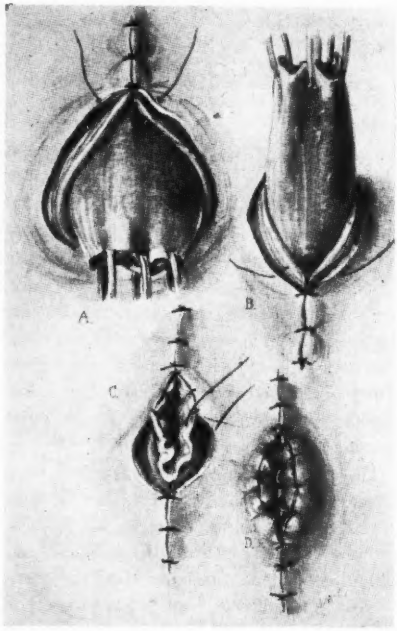


Fig. 3. Sufficient part of rectum already removed. Anterior and posterior parts of levator ani muscle already sutured to rectum.

A. Rectum pulled backward showing sutures lessening the size of the skin and sphincter opening anteriorly.

B. Rectum pulled forward showing interrupted sutures lessening the size of the skin and sphincter openings posteriorly.

C. Rectum amputated and cut ends being attached to skin and sphincter on both sides.

D. Suturing skin and bowel completed leaving proper size sphincter and bowel openings.

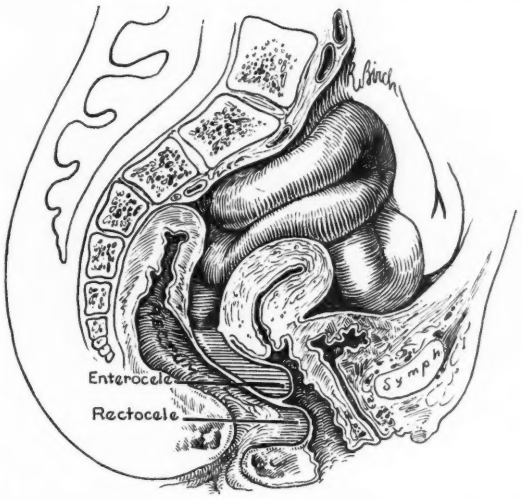


Figure 4. Demonstrates how enterocele and rectocele are intimately bound together. Note rupture of recto-vaginal pouch.

Allen[8] reports two unusual cases of herniation of the rectum with satisfactory results following the highly recommended hernioplastic operation described by Channing W. Barrett of Chicago.

The first case was that of a 66 year old male suffering from depressive psychosis, which originated in childhood and recurred at the climacteric and again during senility. The second was in a 66 year old multiparous white woman, who not only had an excessively large prolapse of the rectum but also a complete prolapse of the bladder and uterus.

Barrett states that the hernioplastic repair of the pelvic floor and amputation of the extruded portion of the bowel is a rational procedure. With this idea of rectal herniation, he describes the following technic of the operation he devised (Fig. 3):

The intrasphincterian hernioplasty[9] begins with a severing of the lower end of the bowel from the skin just inside of the sphincter ani; the bowel is then drawn down and the pelvic floor is sutured through the greatly dilated sphincter. The greatly enlarged pelvic floor opening is lessened in size by placing two or three sutures in the borders of this opening anterior and posterior to the rectum, after which two or three sutures are placed in the skin and sphincter anterior and posterior to the bowel, bringing the new anal opening down to a normal size. A great advantage is gained by doing this procedure while the hernia is still small. In Allen's case it extended out 11 inches (28 cm.) making 22 inches (55 cm.) of herniated bowl. The herniae in some cases have been more remarkable for size than length, the largest being about the size and shape of a cocoanut. These conditions, whether simple or complicated, are true herniations and should be dealt with as such. Every step toward hernioplastic repair should be a step toward normalcy instead of an abnormal hiding or malplacement of the uterus or its remnants.

Isadore Cohn[10] states that to cure this hernia, the following indications must be fulfilled:

1. Resecting of prolapsed bowel.
2. Suspension and fixation of bowel.
3. Repair and restoration of pelvic floor.

Buie[11] believes an amputative operation for rectal prolapse will correct far more of these disorders than previously accredited to it. He also states that when properly performed, even the most extensive prolapse can be cured. His operation is similar to that which has been described as the amputative and plastic operation for extensive hemorrhoids (Whitehead opera-

tion). He calls attention to the fact that the initial incision is along the pectinate line, leaving a cutaneous sulcus laterally for drainage. In order to prevent rupture of the line of suture and consequent retraction of the wall of the bowel into the pelvis, it is advisable to place several sutures through the walls of the lower part of the rectum, where they may be anchored to the adjacent structures in the lower part of the pelvis. Often it is difficult to determine whether the peritoneum or small bowel is included in the protruding mass, but every effort should be made to ascertain this. In his review of 272 cases, Buie's age group varied from infants to old age, in both males and females.

The author feels this is the operation of choice to perform for partial prolapse of the rectum associated with uterine prolapse. He performed the LeFort vaginal plastic operation by approximating the anterior and posterior vaginal walls and converting the vagina into two narrow walls, parallel to one another in a 78 year old multipara, who had a complete uterovaginal-rectal prolapse for the past 30 years. During the past five years she had developed a complete rectal prolapse of 8 inches long and the width of a woman's fist.

The patient was prepared preoperatively by supportive measures, two blood transfusions and daily repeated hot boric acid applications to reduce the edema and infection of the mass. Ten days later she was operated upon. Due to her age, I thought the LeFort vaginal plastic operation was the procedure of choice, followed by a high levator ani perineorrhaphy. This patient made an uneventful surgical recovery, but her rectal prolapse was not completely reduced. Instead of a complete massive rectal prolapse which she had preoperatively, it was reduced to a simple prolapse of 4 inches and greatly reduced in diameter. The operation of my choice usually in these cases is a vaginal hysterectomy, with complete urogenital and pelvic floor reconstruction.

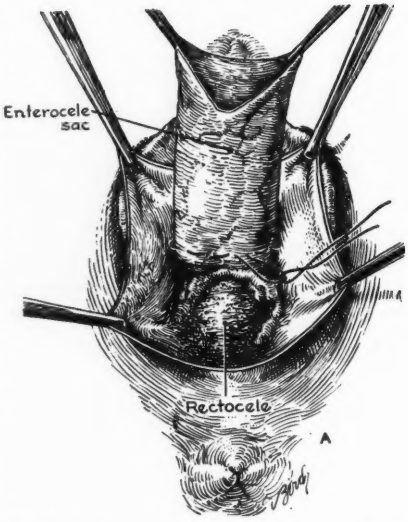


Fig. 5. A transverse incision has been made at the mucocutaneous junction as in operation for rectocele. Then posterior vaginal wall is divided in the mid-line up to cervix. Sac of peritoneum has been dissected out completely, opened, and contents pushed back into peritoneal cavity. A purse string suture of chromic #1 ligates the sac. Sacrouterine ligaments next approximated with chromic #1 interrupted sutures, reconstructing cul-de-sac or recto-vaginal pouch.

Enterocele occurs not infrequently, consisting of a true hernia through the cul-de-sac of Douglas. It is often due to a congenital weakness of the pelvic floor at this point, between the uterosacral ligaments.

When one mobilizes the posterior vaginal mucosa, the rectocele and enterocele can be recognized as separate herniae, provided one carries the rectocele dissection high enough. This is one of the reasons for making a high denudation in operating for a rectocele.

The association of rectocele with enterocele (Fig. 4) was stressed by the late George Gray Ward[12] of New York, as far back as 1922.[13] He then proposed a vaginal operation for cure of this hernia. His

procedure carried out entirely through the vagina consists of mobilizing the cul-de-sac of Douglas (Fig. 5) on all sides, opening the hernial sac, reducing the contents, ligating its base and resecting the sac. The uterosacral ligaments are then united in their entire length, as a protection against recurrence, and the perineum (Fig. 6) is repaired. I prefer Ward's operation because of the excellent anatomical results it gives. He also repairs the anterior urogenital segment by advancing the bladder, utilizing the pubocervical ligaments and pedvic fascia when the uterus is left. We must also not forget that rectal prolapse, rectocele and enterocele occur concurrently in this area, and are well recognized in pelvic floor herniations.

Read,[14] in 1951, reports his personal series of 167 operations, between the years

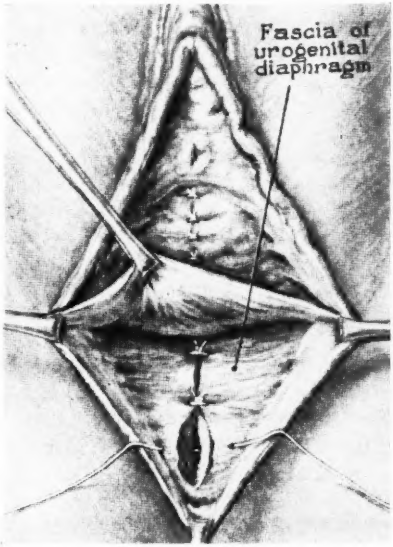


Fig. 6. Shows cystocele and anterior vaginal wall, enterccele, relaxed perineum and rectocele already repaired. The levator ani muscles and fascia approximated in mid-line covering rectum. This step shows the repair of the strong fascia (Colles) of the urogenital diphragm. The final step, not shown, is the closure of the vaginal wall and skin, routinely.

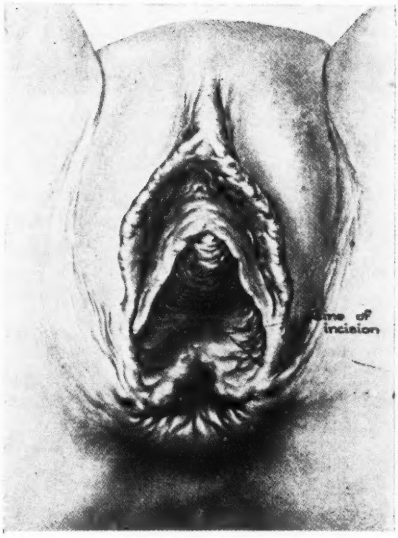


Fig. 7. A muco-cutaneous incision extending from the upper rectal margin to the lateral dimples of the sphincter ani is dissected high up into the vagina.

1929-1951, for the cure of posterior vaginal hernia. He classifies them as enterocele associated with uterovaginal descent or enterocele with or without rectocele formation. He prefers the Manchester vaginal plastic operation because he feels in his hands the results are more stable than are vaginal hysterectomy and repair.

The operation for third degree tear (Fig. 7) is deep surgery for pelvic floor repair and a superficial reconstruction of the sphincter to surround the rectum and attach to other muscles in the center of the pelvic floor.

This also holds good for second degree tears that are encountered quite frequently following mid-forceps delivery. Not infrequenlty following this type of delivery or following a breech extraction, a rectal tear, usually linear, is produced on the side of the deep episiotomy which may be several inches long. Irrespective of the degree of laceration, these repairs should be done immediately. The placenta is

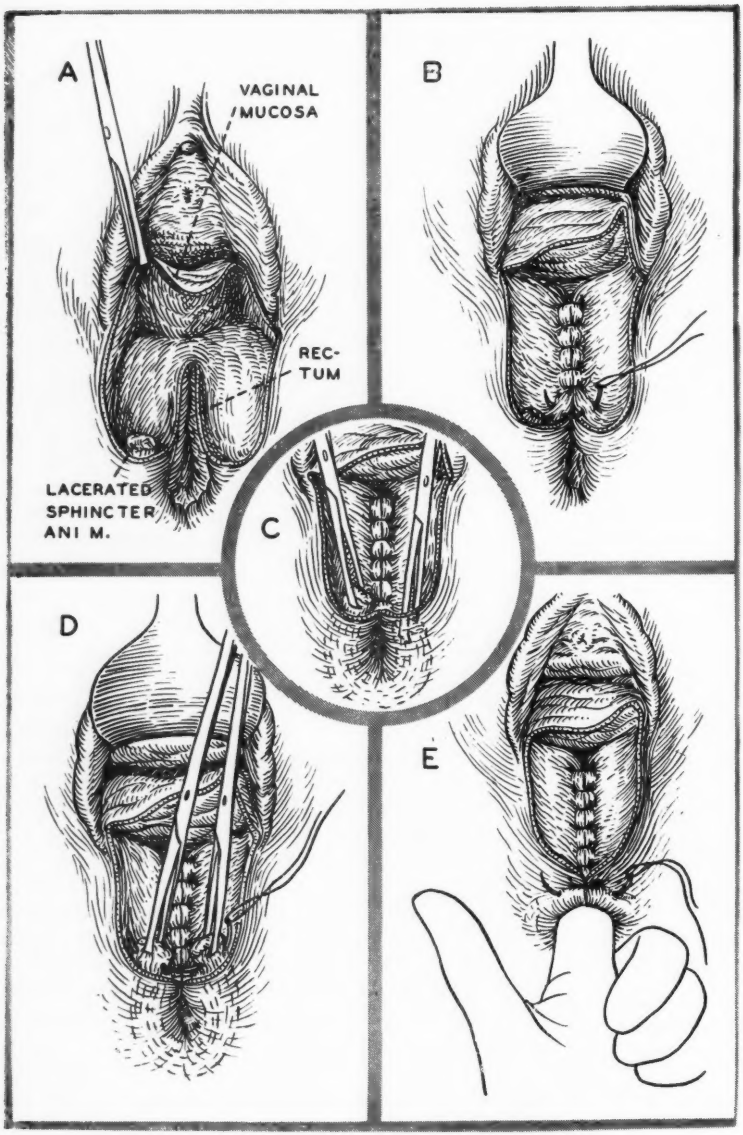


Fig. 8

A. Right vaginal mucous membrane identified at sulcus. To the right of the rectal tear, the lacerated sphincter ani muscle is shown.

B. The rectal mucosa is closed by chromic O interrupted or continuous sutures down to the sphincter.

C. Two torn deep ends of sphincter ani elevated by Allis forceps.

D. The torn ends of the sphincter are brought together by several interrupted O chromic sutures placed deeply in the muscle ends and around the surrounding fascia.

E. Index of left hand inserted into rectum and two interrupted silkworn retention sutures are placed into skin and united sphincter ani muscle. The rest of the repair is the closure of the vagina and skin. Routine. (J. P. Greenhill, "A Handbook of Operative Surgery")

routinely manually removed. The procedure I have employed in all my difficult operative obstetrical cases which bleed profusely, as a rule, from extensive vaginal tears to the base of the bladder, is described. Besides having a deep episiotomy, in these cases there usually is a marked median separation of the pelvic floor. After controlling the postpartum vaginal and pelvic floor bleeding, the rectal tear is repaired by interrupted Cushing sutures, using chromic No. 0 catgut. The next layer is Lembertized by a running chromic catgut suture.

The time-honored technic of open repair (Fig. 8) with rectal suture has been the principle employed by me. To date my results have been excellent, with the exception of the occasional case that developed annoying rectovaginal seepage. The secret of repair of these tears immediately is to recognize the vaginal sulci, the hymenal ring, sphincter ani edges and the markings of the labia majora and the posterior commissure. One must also bear in mind that medially to the levator is the ischiorectal fossa with Alcock's canal containing the pudendal vessels and nerves. The rectum wall, bulging directly into the wound, can be identified by the index finger of the left hand in the rectum. The levatore ani can be identified easily from its insertion from the arcus tendinus. The rest of the operative procedure is similar to the technic employed in the latent case of third degree tear of the pelvic floor. This is known as open repair with rectal suture.

It is advisable to stretch the shortened sphincter muscle, so that it may encircle the anal opening without due tension. A mucocutaneous incision, extending from the upper rectal margin to the lateral dimples of the sphincter ani, is dissected high up into the vagina from the underlying adherent anterior rectal wall. The rectal mucosa is closed over by 00 chromic interrupted or continuous surgical gut sutures placed in the fibrous tissue over the rectum. The first interrupted suture or the first stitch of the continuous suture is continued downward to the sphincter. These sutures must not include the rectal mucosa. The two torn ends of the sphincter ani muscles are elevated with Allis forceps. These forceps usually must be placed deep down around the anus to locate and grasp the torn portions of the sphincter muscle which generally have retracted. The torn ends of the sphincter muscle are brought together by interrupted No. 0 chronic surgical gut sutures placed deeply in the muscle ends and around the surrounding fascia. This will correct rectal sphincter control. After these two sutures are tied, an extra glove is placed on the left hand, the left index finger is inserted into the rectum and sphincter ani muscle. Again, care must be exercised to be sure the suture does not penetrate the rectal mucosa. After this, the finger is removed from the rectum and the outer glove discarded. The rest of the repair is the same as for a second degree laceration.

Some gynecologists cut the sphincter ani muscles subcutaneously in a posterior quadrant to release tension on the sutured anterior part. Two retention silkworm-gut sutures are inserted into the external sphincter muscle and are removed after four or five days.

In the postoperative management no enemas are given until the fourth or fifth day, but a low residue diet is given during this time. Sulfasuxadine, drams I, is given three times daily, as well as 400,000 units of penicillin with 0.5 gram dihydrostreptomycin twice daily. Metamucil is started on the third day, a teaspoonful twice daily. On the fourth or fifth day an oil retention enema is given, which is followed in two hours by a low salt-baking soda enema. The usual routine perineal care is given.

For repair of a large rectovaginal fistula which is near the sphincter ani, an incision is made through the sphincter ani muscle, the fistula and the rectovaginal wall below and above the fistula. This

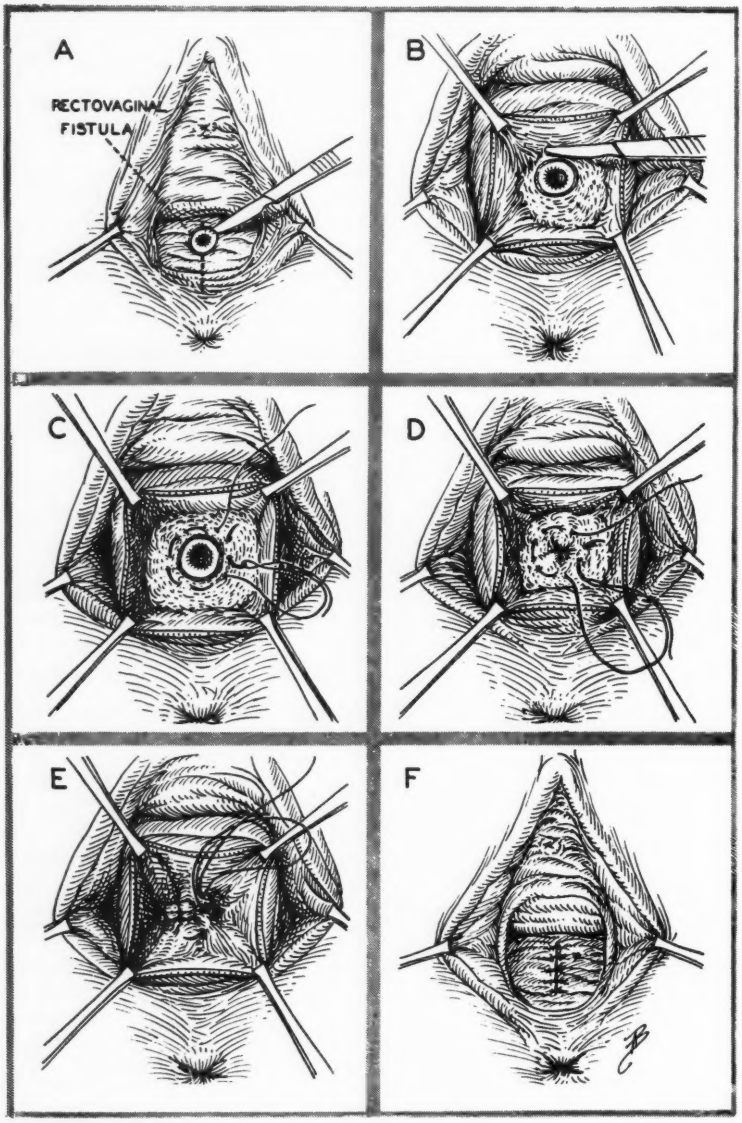


Fig. 9.

A. A rectovaginal fistula high above vaginal introitus. Circular incision 0.5 cm. from fistulous opening. Vertical incisions 2 cm. from fistulous opening.

B. Allis forceps placed in vaginal mucosa and the mucosa is widely and freely dissected.

C. A purse string of chromic O catgut placed 0.5 cm. from vaginal mucosa attached to fistulous opening, but not through rectal mucosa. The purse string is tied, inverting the fistula into the rectum. There must be no tension whatever when this suture is tied.

D. A second purse string chromic O catgut suture is placed.

E. The submucosal tissue is sutured together vertically by continuous chromic O catgut.

F. The excess vaginal mucosa is excised and it is now sutured vertically by a continuous chromic O catgut.

If the fistulous tract is too large to be closed by a purse string suture, the fistula can be repaired by interrupted or continuous chromic O catgut. (J. P. Greenhill, "A Handbook of Operative Surgery")

produces an artificial third degree laceration. The scar tissue and fistulous tract is cut away. A continuous No. 0 chromic catgut suture is placed at the upper end of the incision in the tissue of the rectovaginal septum and is continued downward to the sphincter ani muscle. Lembertized stitches are taken to avoid rectal mucosa. After this suture is tied the rest of the operation is the same as repair of a third degree laceration.

A simple procedure for small low rectovaginal fistula consists in vaginal denudation as in a simple perineal repair. The opening in the rectum is dissected free and loose from its scar tissue. It is closed by a simple purse-string suture about 0.5 cm. away from the opening with chromic No. 0 catgut. Purse-string sutures must be free from tension. A few interrupted No. 0 chromic catgut sutures vertically closes the overlying rectal fascia without tension. Perineorrhaphy completes the operation. This technic can be used where a perineorrhaphy is not necessary.

For a rectovaginal fistula high above the vaginal introitus, I prefer the following technic (Fig. 9):

The fistulous tract is circularized about ½ cm. and then a vertical incision is circularized for about 0.5 cm. above and below. The vaginal mucosa is freely dissected so that no tension will be put on the fistulous opening. A purse-string of No. 0 chromic catgut is placed about ½ cm. from the opening but not through the mucosa. The purse-string is tied, inverting the fistula into the rectum. There must be no tension whatever when the suture is tied. A similar second purse-string of No. 0 chromic catgut is applied. This closure is then further banked by suturing the fascia vertically. The excess vaginal mucosa is excised and the final incision is sutured vertically by a continuous suture of No. 0 chromic catgut.

The postoperative care previously mentioned is used after this procedure also.

Since 1909, Barrett has called to the attention of the gynecologists and proctologists that rectal herniations and rectal prolapse were herniae through the pelvic floor. He laid stress upon deep levatore ani repair as the operation for relief of pelvic floor herniations. He also called attention to the fact that rectal prolapse was a hernia through the pelvic floor and sphincter ani muscle, for which he developed the intrasphincteric hernioplastic repair of the levatores for its relief. In herniation of rectocele he pointed out that it was the bulging of the anterior rectal wall that herniated and that the anal orifice was pushed back posteriorly.

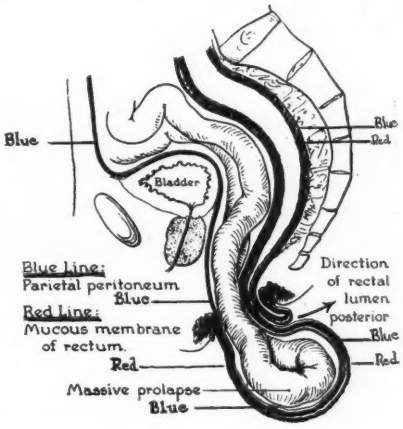


Fig. 10. The invagination of the anterior rectal wall into itself and through the anal canal separates the fascial and muscular supports of the rectum and by over stretching results in incompetence of the anal sphincter. The lengthening of the mesentery of the small bowel occurs over the years to such a degree that small bowel lies within the hernial sac of a massive prolapse.

Graham, in 1942, in his work on massive rectal prolapse (Fig. 10) confirms the view of Moschowitz in 1912, that massive prolapse of the rectum is essentially a sliding hernia of the anterior rectal wall through the anal canal. Evidence that prolapse occurred chiefly at the expense of the anterior wall was shown, in that the lumen of the rectum presented on the

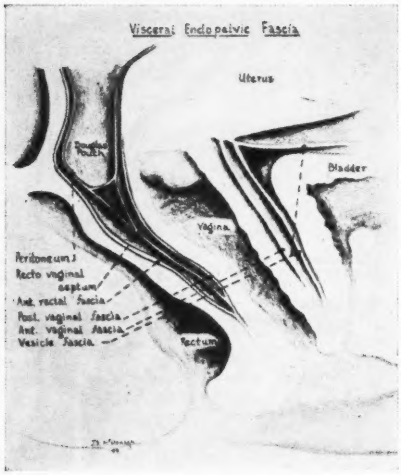


Fig. 11. Illustration showing clearly the fused dorso-ventral peritoneum forming the recto-vaginal septum and its relationship to capsules of rectum and vagina. (Harrison and McDonagh —From original dissections of Uhlenbuth and co-workers.)

posterior aspect of the prolapsed mass. Graham repairs the levatores abdominally and obliterates the pouch of Douglas. The approximation of the levatores forces the rectum back into the hollow of the sacrum, restoring its normal angulation and it is then no longer possible to invaginate the anterior rectal wall through the anal canal.

Harrison and McDonagh[15] state that enterocele and high rectocele occur not infrequently together, consisting of true herniae through the cul-de-sac of Douglas. It may often be due to a congenital weakness of the pelvic floor at this point (Fig. 11), between the intrasacral ligaments.

In 1948, Uhlenhuth and his co-workers[16] demonstrated embryologically and anatomically in adults, infants and fetuses, the variations in the peritoneal fusion of the pouch of Douglas. This process of fusion varies in different individuals and this explains the variability of the depth of the cul-de-sac.

It can be seen from the above discussion that the embryological and anatomical investigations of the rectovaginal septum corroborate the previous clinical investigations.

Summary and Conclusions

1. The gynecologist and obstetrician are both vitally interested in associated conditions of the anorectal region.

2. The middle and most important support is formed by the levatores ani. The muscles of the central point of the perineum are also described.

3. The author recommends conservative management of hemorrhoids during pregnancy.

4. Barrett maintains that genitourinary protusions and rectal protrusions are both herniae through the levatores ani.

5. Moschowitz and Graham agree that massive rectal prolapse is a sliding hernia of the anterior wall of the rectum at the level of the cul-de-sac of Douglas or rectovesical pouch.

6. There are two methods operating on these cases, either through the abdominal, vaginal or perineal approach. Both schools have reported supposedly good results.

7. Barrett states that hernioplastic repair of the pelvic floor and amputation of the extruded portion of the bowel is a rational procedure.

8. George Gray Ward, in 1922, stressed the association of rectocele with enterocele, and recommended his complete vaginal plastic operation for this hernia.

9. Operative procedures and management for third degree tears and recto-vaginal fistula are described.

10. Uhlenhuth and his co-workers, in 1948, demonstrated the importance of the developmental variations of the cul-de-sac of Douglas or the rectovaginal septum. Their work corroborates the findings of previous clinical investigators.

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Anorectal Complications of Aureomycin, Terramycin and Chloromycetin Therapy

S. D. Manheim *New York State Journal of Medicine,* [51:2750(1951)] reports 100 cases of an anorectal syndrome following the therapeutic use of aureomycin, terramycin or chloramphenicol, given by mouth. In those cases, the "symptom pattern" was much the same in all, and did not resemble the so-called idiopathic pruritus ani, or typical chronic anal fissures. The chief symptoms were perianal itching, pain, burning sensation and bleeding on defecation. Examination showed perianal erythema, excoriation and thickening of the perianal skin, and in some cases multiple superficial fissures. In a few cases there was an associated perianal abscess, or ulcerative proctitic or colitis. All these patients gave a history of taking aureomycin, terramycin or chloromycetin, or a combination of two of these antibiotics about two weeks before the onset of the anorectal symptoms. Most of these patients had had no previous pathological condition in the anorectal region and those who had shown anorectal symptoms previously had an exacerbation of symptoms. While the exact dosage could not be determined in all cases, it was found that most of the patients with severe symptoms had taken relatively small amounts of the antibiotics employed. Aureomycin had been employed in the majority of cases, Chloromycetin in relatively few cases. In the majority of these cases, the antibiotic was given in the treatment of upper respiratory tract infections, in which the author considers them to be "of questionable value." The anorectal symptoms following the oral administration of these antibiotics is probably to be attributed to the resulting alteration in the intestinal bacterial flora, so that organisms resistant to the antibiotics are not inhibited and are the cause of the anorectal infections. On this basis, the local treatment of the anorectal lesions with ointments has recently been supplemented by the administration of acidophilus or buttermilk in order to restore the normal bacterial flora of the intestines, which has proved of definite value.

Bowel Management

In Postoperative Care of Anorectal Wounds

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Flushing, N. Y.

In this presentation we shall concern ourselves entirely with the management of bowel movements following anorectal surgery. Certain general criteria may be established for the optimum management of this phase of postoperative therapy.

First, the movements should be as painless as possible. Second, they should be sufficiently soft and free from surface protrusions so that no damage will be done to the surgical wounds. Third, they should be sufficiently bulky to provide a normal defacation stimulus. Fourth, they should be both formed and soft to act as a gentle *internal* dilator, thus aiding in the prevention of stricture or stenosis. Fifth, they should interfere as little as possible with wound healing.

In this paper we will consider the ability of certain laxatives to assist in meeting these criteria. The merits and demerits of mineral oil and its emulsions will be evaluated against bulk producers such as the psyllium derivatives, the vegetable gums, and the newer synthetics containing methylcellulose and carboxymethylcellulose.

This report is based upon a clinical study of 200 postoperative anorectal surgical patients who were treated with mineral oil alone, by mouth, in comparison with 200 comparable patients treated with refined psyllium derivatives. In all other respects operative management was the same.

Need for Postoperative Laxative

Patients who present themselves for rectal surgery are usually constipated. Even if they are not, the fear of a bowel movement after surgery usually results in constipation. Well meaning friends and neighbors, as well as relatives previously operated upon, have usually advised the patient that he may expect "agony with the first bowel movement." Of course, if the area of surgery is not protected by a long-lasting aqueous or oil anesthetic solution, the first bowel movement may indeed be very painful.

However, despite the use of such anesthetic agents, most patients are psychologically conditioned to expect the first bowel movement to be very painful. Therefore, they consciously or unconsciously withhold the stool, and the result is constipation. The retained stool, whether retained as a consequence of organic pathology or conditioned fear, becomes bulky and dry. This type of stool may damage the operative wound during passage.

The patient must also be given every

assurance that these bowel movements will not be unduly painful. The best assurance is the printed page. The average patient has great respect for anything in print through the conditioning of years to the "authority" of newspapers, textbooks, etc. Thus, if he is provided with printed instruction sheets to indicate that every effort is being made to provide easy, relatively painless bowel movements, he will be reassured. General intestinal, general muscular, and local sphincter spasm will therefore be reduced, and the initial bowel movements will be less troublesome.

From my own experience, the little book for the layman, *Painless Rectal Surgery*, has proven very effective in the psychological management of preoperative and postoperative patients. This text is simply written, with marginal notes in red, and a 1, 2, 3 summary at the end of each chapter. If the patient *expects* to be relatively comfortable after surgery, the muscle tension factor is considerably reduced.

On the other hand, a word of warning must be given. If the patient expects too much, which frequently occurs, he may be disappointed, and spasm may result rather than relief. For example, the patient may expect that there will be no sensations whatever after extensive surgery. This is not always the case. The temperament of the patient may be such that minor degrees of pressure are exaggerated. The sensations that result from rectal surgery, with or without long-lasting anesthetic, were not anticipated. The patient may have expected that there would be no change from his previous bowel habit except toward complete and immediate relief of the distress that brought him to surgery. Under these circumstances the actuality may be disappointing and frustrating. The physician must therefore guard himself against this type of patient-reaction.

The physician is justified in advising the patient that the surgery will relieve his symptoms and that bowel habit may be expected to improve. However, it is also important to advise the patient that bowel habit is not determined entirely by the condition of the anorectal area. There are factors of diet and emotion upon which the physician can only advise. The actual control rests with the patient. This being the case, although there will be improvement after surgery and proper medication, in the average case it will be gradual in its appearance, and the patient must not expect an overnight "cure."

I do not wish to appear to dwell overmuch on the emotional factors in postoperative constipation. However, it is my opinion that these factors are in many cases even more important than organic disturbances or the dietary component. In any event, the patient's attitude toward the surgery, his previous conditioning with regard to surgery and bowel movement, and his expectations for the postoperative bowel movements must always be taken into account.

Choice of Laxative Having considered, evaluated, and provided for these factors, it now becomes a question of local or general medication to assist in achieving relatively painless postoperative bowel movements. For many years it has been my custom to prescribe mineral oil, one ounce, to be taken the night of surgery, and continued thereafter.

The patients' major objections to mineral oil by mouth were as follows:

1. The oil is often distasteful or nauseating.

2. There is a tendency toward leakage from the rectum.

3. Habituation is evidenced by a need for increasing dosage.

4. Bowel movements are sometimes so loose as to be uncontrollable.

The presence of oil in the anorectal wounds may be a factor in delaying healing. More recent experience with psyl-

lium therapy would seem to indicate that this factor is clinically significant.

If the mineral oil is prescribed to be taken at least 5 hours after the evening meal, there is probably no interference with the absorption of vitamins A, D, E and K. On the other hand, the absorption of these fat soluble vitamins and other nutrients may be disturbed by mineral oil,[1-7] and there is some question of interference with calcium and phosphorus metabolism as well.[8]

The intestinal absorption of mineral oil has been reported,[9-14] and the possible presence of carcinogenic agents in mineral oil has also been discussed in the literature.[15-18] However, I have seen no clinical changes in this direction. Of more immediate consequence to the proctologist is the frequency with which pruritus ani occurs subsequent to the leakage of mineral oil.

Because of these disadvantages an experimental clinical study was instituted with two different concentrates of Plantago ovata (blond psyllium). The change to a bulk laxative was dictated only partly by the above described disadvantages of mineral oil. A major factor was the theory that a bulk laxative would act as an internal dilator, preventing postoperative adhesions, and physiologically enlarging the anal outlet after the narrowing effects of surgical excision procedures. This theory has been substantiated by the clinical experience of the author.

The selection of a psyllium preparation as the bulk laxative of choice was determined by the literature. A report by Cass and Wolf,[19] and another report by Berberian, Pauly and Tainter,[20] compared the therapeutic effectiveness of psyllium therapy to the newer synthetic bulk laxatives, methylcellulose and carboxymethylcellulose, in the management of the various types of constipation. The psyllium derivatives proved considerably more effective than methylcellulose as a bulk laxative. Indeed, in the severe types of constipation 73 to 82 per cent of patients in one report were improved on psyllium therapy.[19]

The psyllium preparations were also considered more effective than milk of magnesia, mineral oil, cascara or a phenolphthalein-ipecac preparation. It is interesting to note that psyllium therapy (in this case L.A. Formula and Konsyl) was as much as 8 times more effective than methylcellulose. Further, to be even partially effective in improving bowel function, a very large dosage of methylcellulose is required, between 16 to 24 tablets per day in most cases.[21]

The vegetable gums, such as karaya, were also considered but in view of the frequent allergic responses these preparations were not used in this study. Equally important is the fact that the gum particles absorb water as an entity and hence do not intimately blend with the intestinal contents.[22-30]

However, there has been criticism of psyllium from several points of view, and these criticisms were investigated before beginning the clinical experiment. Before derivatives of psyllium were made available to the profession, whole psyllium seeds were frequently used. Impactions often resulted because these seeds, like karaya, swelled as an entity and tended to agglutinate. The refined psyllium preparations tend to mix intimately with the intestinal contents and impactions are no longer a problem when taken with sufficient liquid.

It should be observed that the incidence of sensitivity to psyllium is extremely small. Ground psyllium seed shows greater antigenicity than whole psyllium seed.[24-31] The preparations employed in this clinical study contain as the active ingredient only the mucilaginous outer coating of psyllium (blond) seed. This is important inasmuch as it would appear that the sensitizing antigens are apparently predominant in the seed core, and not in the outer coating. A careful study

of the literature did not reveal adverse reports on blond psyllium therapy.

There have been two reports on renal pigmentation following ingestion of psyllium seed.[32-33] However, the seeds studied in these reports were those of Plantago psyllium (black psyllium). This is an entirely different type of seed from Plantago ovata (blond psyllium) and is heavily pigmented with black material. It should be noted further that only the whole, ground seed of black psyllium produced renal pigmentation.

We may be satisfied, therefore, that blond psyllium preparations may be safely employed in a clinical study of the postoperative patient. We may also be content that it is perhaps the best of the bulk laxative preparations for our purpose. In view of these findings a clinical trial of refined psyllium preparations was instituted.

Clinical Evaluation Two blond psyllium preparations were used in this study. As above indicated, the preparations were refined from the outer mucilaginous coating of Plantago ovata. They may thus be considered concentrates of the hemicelluloses of Plantago ovata. These hemicelluloses are a natural hydrophilic colloid which act by retaining the fluid ingested. This results in a soft bulk which intimately mixes with the intestinal contents. This water retaining, gelatinous residue resists the absorptive powers of the lower bowel and encourages elimination by promoting normal peristalsis. Passage of the stool is facilitated by the lubricant action of the gelatinous mass.

One of the preparations (Konsyl) contained the refined mucilaginous coating of the blond psyllium seed as described, without additional medication. The other (L.A. Formula) was a mixture of the refined psyllium coating with an equal amount of lactose and dextrose to produce rapid suspension in water.

The pure seed coat preparations produces 30-plus cc. per gram. The mixture yields 20-plus cc. per gram. Inasmuch as gel formation does not take place for about 4 or 5 minutes when added to water, the mixture is readily swallowed.

The patients in this study included all types of anorectal surgery, hemorrhoids, prolapse, extensive fistulectomies, anal ulcer, cryptectomy, etc. The following instructions were given to the patient on the day of surgery:

1. Take one ounce (whiskey glassful) of mineral oil each night, beginning tonight.
2. You may eat any food other than fruits, fruit juices or raw vegetables.
3. Tomorrow you may eat all foods, including fruits, fruit juices and raw vegetables.
4. DO NOT move your bowels until you are told to do so.
5. You will receive a prescription for pain. Take one capsule. If you continue to be uncomfortable, take another capsule one hour later. Do Not Take These Unless You Are In Pain.
6. If you need the second pain capsule, take the sleeping capsule with it.
7. You will also receive a capsule for sleep. Take it at bedtime. If you waken during the night take another.
8. Buy Kotex (or other sanitary napkins), an elastic sanitary pinless belt and sterile gauze squares. Bring the pads and belt to the office at the time of your first visit.

At the time of the first postoperative dressing the instructions were changed as follows:

1. Do not move your bowels until tomorrow.
2. Continue mineral oil until you have had your first bowel movement.
3. Then stop mineral oil and begin $\left.\begin{matrix}\text{Konsyl}\\ \text{L.A. Formula}\end{matrix}\right\}$ as follows:

Take $\left.\begin{matrix}\text{one rounded teaspoonful}\\ \text{one heaping teaspoonful}\end{matrix}\right\}$ of this preparation twice daily, stirring it into a full glass of water, fruit juice or milk.

Take once after breakfast and again after the evening meal. A second glass of liquid may be taken if desired.

4. Sit in hot water, in a tub or other container, for ten minutes after each bowel movement. The water should be as hot as you can comfortably bear. Test it with your elbow. The elbow can stand approximately 110 degrees F.

5. You need no longer restrict your diet. You can now eat fruits, fruit juices and raw vegetables as well as other foods.

6. If your bowels become too active, stop or reduce the intake of fruit, fruit juices, and raw vegetables.

7. If you do not have a bowel movement tomorrow take one ounce of milk of magnesia tomorrow evening in addition to the mineral oil you have been taking. Unless otherwise instructed, take milk of magnesia ONLY on this occasion.

8. If you still do not have a bowel movement the day after taking the milk of magnesia and mineral oil, then you must take an enema. Use a catheter (which you can purchase in a drug store) rather than a bone tip, and lubricate it with a large quantity of vaseline. Do not insert more than two inches of the catheter. Use plain warm water.

9. Bleeding may occur as a result of the stitches coming out. Do not be alarmed.

It will be observed that mineral oil is employed the evening of operation and until the patient has had his first bowel movement. Certainly there can be no harmful effects from mineral oil prescribed in this fashion. It is best, for the psychological reasons above described, as well as for physiological reasons, that the first bowel movement be well lubricated and not too bulky. Some patients have a psychological but ungrounded fear of ingesting increased bulk prior to the first bowel movement and are likely to withhold the stool in the fear that pain and wound damage will result from the larger stool. If the patient does not have an adequate bowel movement within 48 hours after surgery, milk of magnesia will be required, or a mineral oil instillation or a warm water enema.

After the first bowel movement the mineral oil is stopped and one of the bulk psyllium preparations is prescribed for the reasons previously outlined. Patients who are on reducing diets, and those who do not wish to gain weight, should receive the preparation without added sugars. There will be occasional patients who will object to the mucilaginous "taste" of these preparations, but there will not be as many as those who object to the "oily taste" of mineral oil.

These patients were all operated upon under caudal analgesia, without hospitalization. Surgery was complete and extensive in all cases. Patients were immediately ambulatory after surgery, often driving their own car home, and returning to the office the next day for their first dressing. These patients returned to work within 24 to 48 hours after surgery.

In addition to the caudal analgesia to provide surgical relaxation, an oil soluble anesthetic was infiltrated locally to provide relative postoperative comfort. The patients were encouraged to expect a relatively pain-free postoperative course.

Several interesting observations resulted from this study. First, the patients taking psyllium healed approximately 2 to 4 weeks sooner than those who had previously taken mineral oil alone for postoperative laxative action. It would therefore appear that mineral oil interferes with postoperative healing. There is no justification for the conclusion that a psyllium preparation hastens healing except insofar as it leaves a clean wound area in which granulation tissue can better develop.

Second, the bulk action of the psyllium preparation provided an internal dilator action, thus reducing the frequency

of postoperative narrowing by stricture or stenosis. This is a very important factor inasmuch as it is impractical to ask the average patient to return to the office for digital manipulation more than two or three times weekly after surgery. The internal dilator action of the bulky stool provides this effect in a completely physiologic fashion, every day.

Third, habituation to the preparation rarely developed, and a proper dietary regime was provided as a substitute for psyllium therapy within three months following surgery. Indeed, as soon as it became evident that the internal dilating action was no longer indicated, instructions as to general hygienic management and dietary changes were provided for the patient as follows:

Frequent Causes of Chronic Constipation:

1. The urge to move the bowels is ignored;
2. Insufficient water is taken;
3. Insufficient food bulk;
4. Irregular eating habits;
5. Nervous tension and worry;
6. The laxative habit;
7. Insufficient exercise.

To Correct This Type of Chronic Constipation:

1. When you feel the urge to move your bowels attend to it at once. Stop work or play and go to stool.
2. Set a definite daily time for bowel evacuation. Don't hurry the process. A foot rest might help in increasing your comfort and raising the knees.
3. Relax. Don't strain.
4. Eat meals at regular hours. Eat slowly and chew food well.
5. Eat five raw fruits every day, two large green vegetable salads, a glass of fruit juice, and whole wheat bread.
6. Drink two glasses of water upon arising, and four to six additional glasses during the course of the day.
7. Sleep eight hours. Arrange to rest after each meal.
8. Relax during the day by changing your pace and varying your work.
9. Take a brisk walk daily.
10. A bowel movement every three days is normal if the stool is not hard. You don't need a daily movement to be healthy.

Conclusions

A comparative clinical study of refined psyllium preparations (Konsyl and L.A. Formula in this series) as contrasted with mineral oil in the management of postoperative constipation following anorectal surgery is described. This study is based upon 200 patients who received the psyllium preparations as compared with 200 patients on mineral oil therapy.

Refined psyllium products were selected for this series as the bulk therapy of choice after an exhaustive survey of the literature as well as personal experience had proven other bulk producers to have one or more drawbacks.

The clinical disadvantages of mineral oil were: 1, leakage from the anus; 2, apparent interference with wound healing; 3, occasional perianal dermatitis and pruritus ani; 4, uncontrollable bowel movements.

The advantages of psyllium therapy were found to be: 1, an internal dilator action of the soft bulk stool, preventing adhesions, stricture and stenosis; 2, palatability and ease of administration in most cases; 3, a dependable laxative action; 4, more rapid postoperative healing as compared with the patients on mineral oil; 5, patients were not habituated even after three months on psyllium therapy.

It would appear, therefore, that psyllium therapy provides a natural, unabsorbable bulk and lubricant with no clinical disadvantages. It offers many advantages over mineral oil and has none of mineral oil's disadvantages.

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43-55 Kissena Boulevard

The Portacaval Shunt for Portal Hypentension With Special Reference to Cirrhosis of the Liver

A. H. Blakemore *Bulletin of The New York Academy of Medicine,* [*27*:477 (1951)] reports 140 cases in which portacaval shunt was done for relief of portal hypertension; 102 of these were cases of cirrhosis of the liver in which the site of the portal block was within the liver, and in 38 cases the portacaval block was extra hepatic. In the first group of cases the anastomosis between the portal vein and vena cava, a side-to-side anastomosis, was found to be the method of choice. In the second group the anastomosis was done end-to-side between the splenic and the renal vein. The cases of cirrhosis of the liver were classified according to "the functional status of the liver" as determined by liver function tests. There were 52 cases in which liver function was relatively good (Group I); in this group there were 6 postoperative deaths with only one death due to liver failure. In the second group, there were 16 post-operative deaths, 10 of which were due to liver failure. But as patients in this group would have died within a few weeks or months without operation, the operative procedure resulted in saving the lives of 68 per cent of this group. The much better results in Group I, however, indicate the importance of "evaluating" patients with cirrhosis of the liver for the shunting operation when the first definite symptoms of portal hypertension develop. In the 38 cases with extrahepatic block, there were 3 postoperative deaths. A follow-up analysis of 80 cases of cirrhosis of the liver, in which portacaval shunt was done, shows that 5 patients died of hemorrhage, representing a failure of the shunting operation; a portal vein to vena cava anastomosis was done in only one of these cases. Six of the patients died of liver failure, after a period of survival up to four years; 5 died of other causes. Most of the living patients have shown "amazing" clinical improvement since operation, and liver function tests indicate a definite improvement in liver function.

Preventive Proctology*

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Increasing emphasis is being placed, in all branches of medicine, upon the prevention of disease. This paper is intended to review some of the preventive measures which may be applicable to proctologic conditions.

Hemorrhoids Hemorrhoids appears to be one of the biologic penalties assessed against mankind in exchange for the privilege of assuming the upright position. It is commonly considered, however, that the avoidance of certain conditions may help to prevent or delay the formation of hemorrhoids. These are, avoidance of long continued standing, crouching or sitting, with infrequent change of posture, constipation, diarrhea and proctitis. (Prevention of the last three conditions is discussed below.) During pregnancy, constipation and straining is especially to be avoided. Proctitis and diarrhea are particularly prone to precede thrombosis of hemorrhoids. Chronic coughing, use of purgatives, and compression of abdominal contents interfering with venous drainage are other preventable causes.

Constipation Prevention of constipation should begin in early childhood with proper toilet training. The proper amount of discipline and inculcation of regularity is required to form the habit of regular bowel movement. However, excessive discipline may defeat this purpose. Much of an infant's emotion is attached to its excretory functions, particularly the emotion of resentment at being required to control himself and end the period of lack of inhibitions. Thus, constipation may be caused by the child being afraid to move its bowels even at the proper time because of over-strictness in toilet training. The child may wish to remain constipated as an expression of his hostility to the over-insistent mother. Thus, both laxity in training and over-strictness may have the same result in producing constipation.

The adult can, with somewhat more difficulty, train himself to avoid or correct constipation by adhering strictly to a definite time for the attempt at evacuation and never failing to respond to the slightest urge felt at any other time of the day no matter how important other business in hand may be. Each time the urge is felt and restrained makes it weaker and less effective the next time. Sensitivity of the rectum to the evacuation urge can be retained by immediate responsiveness. When no evacuation is achieved at the regular time which has been set, it may be encouraged by instillation of tap water by means of a baby enema bulb and in this way the habit may be begun. A proper mixed diet with moderate amounts of roughage, liberal fluid intake and mineral oil where necessary, plus vitamins and

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exercise will be helpful in establishing the habit. Patients who are bedridden or are ingesting iron, bismuth or calcium in any form should particularly be careful to avoid constipation with subsequent fecal impaction.

Diarrhea and Proctitis, which is its frequent concomitant, may be prevented to some extent by avoiding such foods as are known by the individual to have a strong laxative action (probably allergic) upon him—milk is a frequent offender in this respect. The avoiding of spoiled, unrefrigerated or questionable food goes without saying. Also to be avoided are the excessive use of spices and condiments, alcoholic drinks, laxatives, and excessive use of roughage and high residue foods as may be the case in some reducing diets. I have seen adherence to a reducing diet consisting almost entirely of raw vegetables followed by a proctitis and aggravation of hemorrhoids or production of thromboses. The indiscriminate use of oral antibiotics, especially aureomycin, should be avoided where they are not essential, as they frequently cause a severe proctitis. The abuse of glycerine suppositories may produce proctitis. Glycerine suppositories are not innocuous as many patients think, but may irritate the rectal mucosa.

Pruritus Ani can, I believe, be prevented in many instances by following the above described measures and in addition by giving attention to the proper hygiene of the anus. Cleanliness should be obtained by wiping the anus with the softest of paper tissue obtainable (uncolored, and not wet) not only after bowel movement but also later in the day, when it will be found that the unconscious expulsions of gas which have occurred during the day have caused a certain amount of soiling. This soiling produces irritation if left on the perianal skin. Where this soiling is excessive or perspiration is profuse, powdering the perianal region with an unperfumed talcum powder is beneficial.

Limitation of spices and alcoholic drinks is also of value in preventing pruritus ani.

Polyps of the Rectum and Sigmoid, although of unknown etiology, appear frequently to be associated with proctitis and sigmoiditis. Measures for prevention of these conditions as previously outlined may therefore have some preventive action against of the formation of polyps.

Fistula Fistula may sometimes be prevented by the early and wide incision and drainage of perianal abscess. Incision should be performed as soon as the diagnosis is made and without waiting for fluctuation and should be wide enough to include the entire abscess roof, making additional branch incisions over areas which are undermined. If a superficial fistulous tract is observable at the time of operation, not involving the entire external sphincter muscle, it may be incised at the same sitting thus avoiding a second operation. Abscess may occasionally be prevented by avoiding swallowing of seeds, small bones and pits which may close the entrance of infected crypts. Care in avoiding injury by thermometers and enema tips is important.

Anal Stricture and Stenosis is usually of postoperative origin, particularly following extensive hemorrhoidectomy, and may be prevented by leaving areas of intact skin and mucosa between each of the hemorrhoids excised, and giving postoperative dilatations once or twice weekly for a period of approximately four to six weeks, depending upon the extent of skin removal and degree of scar tissue formation.

Incontinence may be avoided by early correction of large prolapsed hemorrhoids and procidentia.

During rectal surgery, forceful dilation of the sphincters should be avoided and the sphincter not cut in more than one place and then at right angles to the direction of the fibers.

Prolapse of the Rectum may be prevented by correction of diarrhea, con-

stipation, chronic cough and sneezing. In children, straining caused by a polyp or by whooping cough may be causes which should be controlled by appropriate measures.

Carcinoma of Rectum and Sigmoid Since it has been shown[1-6] that benign rectal and sigmoid polyps in many cases (perhaps 50 per cent) are precursors of malignancy, early eradication of such polyps is of great prophylactic importance in the prevention of some cases of carcinoma. Removal should be followed by biopsy and by periodic proctoscopy and sigmoidoscopy to detect recurrence at the same site or the formation of new polyps in other areas.[8]

Fistula and other sources of chronic irritation about the anus may possibly initiate epithelioma.[7] Therefore, although no proven connection exists between these conditions and carcinoma, it is best to remove sources of chronic anorectal infection and irritation. Constipation may be a factor since most carcinomas occur in the regions of fecal arrest such as the cecum, rectosigmoid and rectum.

Cancers of the skin have been traced to long continued contact with arsenicals, tar, pitch, soot, carbon black, crude paraffin and rays from radioactive substances.

Prevention of the development of inoperable carcinoma is concerned with early detection which may be achieved by teaching patients the value of periodic examination including sigmoidoscopy and instructing them to take note of such symptoms as bleeding, discharge, alternating constipation and diarrhea or change in bowel habits.

Summary

Hemorrhoids, constipation, fecal impaction, diarrhea, proctitis, pruritus ani, polyps, abscess, fistula, anal stricture, prolapse, incontinence and carcinoma have been reviewed with respect to possible preventive measures applicable to these conditions.

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New Sulfonamide Readily Absorbed From the Gastrointestinal Tract

A new sulfonamide, Elkosin, having the chemical name N'-(2,6-dimethyl-4-pyrimidyl-sulfanilamide)-2,4-dimethyl-pyrimidine, has been found to be readily absorbed from the alimentary tract and to be rapidly excreted in the urine. A single oral or intravenous dose of 0.05 Gm. per Kg. of the drug gave average peak levels of 10 mg. per 100 cc. of blood within 2 to 8 hours. Prior and Saslaw reported in *J. Lab Clin. Med.* [*38*:420(1951)] that 80 to 90 per cent of the drug was excreted within 48 hours with an average acetylation of only 13 per cent following oral and 15.5 per cent following intravenous administration. The low acetylation reduces the danger of precipitation in the urinary tract.

The drug was also found to diffuse readily into the cerebrospinal, pleural, and ascitic cavities. After single oral doses 22.6 per cent of the free blood level of the drug was found in the spinal fluid 8 hours after administration. With continued oral therapy the spinal fluid concentration averaged 49.6 per cent of that observed in the blood.

Diagnostic Problems in Carcinoma of the Colon

A Presentation of Three Cases

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The insidious onset of the symptoms of carcinoma of the colon denies many patients the benefit of definitive surgery. Since a cure is our aim, the constant review of the signs and symptoms is warranted if only to make us keener in the observation of our patients.

Surgery of the gastrointestinal tract has advanced rapidly in the last two decades. Morbidity and mortality figures have decreased with improvement in technic and pre- and post-operative preparation. There remains the problem of bringing the patient to surgery earlier if this survival rate is to be increased.

Carcinoma of the colon is fourth in importance of malignancies found in women and second only to carcinoma of the stomach in men. Either the disease incidence is on the increase, or we are more accurate in our diagnosis. Nevertheless, too many cases come to our attention with a palpable mass in the abdomen. When this has occurred, the chances of cure are relatively insignificant. It becomes our duty, then, to use every means at our disposal to make a nearly diagnosis.

Our forebears taught us the value of a carefully taken history. Carcinoma of that portion of the gastrointestinal tract from the cecum to the anus gives rise to symptoms that are of significant value.

Pain is a major complaint in sixty to sixty-five per cent of the cases of right colon lesion and sixty-four to sixty-eight per cent of left colon lesions. It is colicy or cramp-like in character.

Weight loss occurs more frequently in right colon lesions, but it is also present in about forty per cent of left colon malignancies.

Most patients with carcinoma of the colon state that they have experienced a change of bowel habit. They may state that after many years of constipation, they now have a frequency of bowel movement bordering on diarrhea. Others will complain of being constipated after many years of normal bowel habits. Some describe the stools as flat and ribbon-like. Fifty per cent say that their stools are black and tarry. Many seek attention because of gross blood in the stool or the presence of blood stained mucous.

Therefore, any change in bowel habit is a most important observation. The number of patients offering this complaint ranges from forty-eight per cent to fifty-five per cent in various clinics.

The physical examination should be thorough. To be satisfied with the presence of hemorrhoids as an explanation for the patient's symptoms is being short-sighted. Eighty per cent of the malignan-

cies in the bowel are to be found in the sigmoid and rectum and seventy-eight per cent of these are palpable through the rectum. Eighty to ninety per cent of the lesions of the sigmoid are visible through the sigmoidoscope.

Bearing these figures in mind, we must insist that every physical examination include inspection of the perineum, digital examination of the rectum, anoscopy, and proctosigmoidoscopy.

A recent survey by Hodges and McMillan at Ann Arbor revealed that in 200,000 patients examined by x-ray, seven per cent or 15,350 were of the colon. In this group 575 or one in eighteen and one-half patients had primary neoplasms. The first observation of these statistical figures does not seem impressive from a case finding point of view. However, a careful study of the report definitely reveals that such a return from this type of diagnostic investment is commendable.

The three cases to be presented in this paper have been selected as typifying some of the difficulties encountered in establishing a positive diagnosis and instituting definite treatment.

Case 1. M.J.M., White, Female, Age 70. This person complained of cramp-like pain in the abdomen following her meals. There was no history of selective dyspepsia. The abdomen was not distended, and there were no palpable masses present. Rectal examination revealed the presence of several hemorrhoidal tags. Anoscopy and proctosigmoidoscopy were negative.

The electrocardiagraphic findings were normal. The blood picture was that of secondary anemia. Double contrast colon studies revealed several areas of spasm but no intrinsic or extrinsic lesions.

This was essentially the history and the physical findings in October of 1949. Palliative therapy was instituted with favorable results during the next several months.

The patient was not seen again until May, 1951. At that time she had an episode of diarrhea and vomiting with marked abdominal distention. She was given palliative treatment and was asked to submit to a complete physical. On June 1, 1951, she was seen with the same complaints and stated that she had lost five pounds in weight in the past two weeks.

Fig. 1. Case 1—Retrograde colon study showing obstructive lesion of transverse colon with pressure on sigmoid.

A palpable mass was felt in the left abdomen, and she was advised to enter the hospital for observation. She refused, but she did agree to x-ray examination. Double contrast studies were done on June 25, 1951. The presence of an obstructing tumor of the transverse colon was demonstrated. This mass was also causing pressure on the sigmoid.

The blood count was typical of secondary anemia resulting from a gradual loss of blood.

She entered the hospital on June 29th and was prepared for surgery with decompression, blood transfusions, antibiotics, and fluids.

Surgery was performed on July 7, 1951,

Fig. 2. Case 1—Postexpulsion roentgenogram showing persistence of deformity of transverse colon.

about six to eight weeks after the onset of her symptoms. A large annular mass was found in the distal portion of the transverse colon with direct extension into the proximal sigmoid. Generalized metastasis was present in the anterior abdominal wall, omentum, and liver.

No definitive surgery could possibly be attempted. Rather than attempt an open colostomy, an entero-enterostomy was done between the proximal transverse colon and the distal sigmoid.

The postoperative course was rather striking in that the patient improved rapidly, gaining strength and weight and was discharged on the tenth postoperative day. On July 25 she began vomiting and shortly afterwards diarrhea ensued. Metastasis was present over the entire anterior abdominal wall. She expired two months after surgery, but at no time did she become obstructed.

Microscopic examination of the biopsy made of the omental nodes revealed a moderately rapid growing adenocarcinoma of the mucus secreting type, metastasizing to an almost completely necrotic lymph node.

This experience with such a fulminating invasion of a colon which was relatively normal just eighteen months before, is discouraging. Colon studies every six months for all patients with symptoms referable to the colon should be carefully considered.

The results from such a procedure would more than balance the financial burden to the patient. Case finding would be expedited, and the lesions subjected to definitive treatment at an earlier phase of invasion.

Case 2. E. S., White, Female, Age 55. Early in 1949 this patient complained of selective dyspepsia of several months' duration. There was no previous history of weight loss or jaundice. Physical examination revealed a well developed, well nourished white female, not acutely ill. The only positive finding was a moderate amount of tenderness in the right

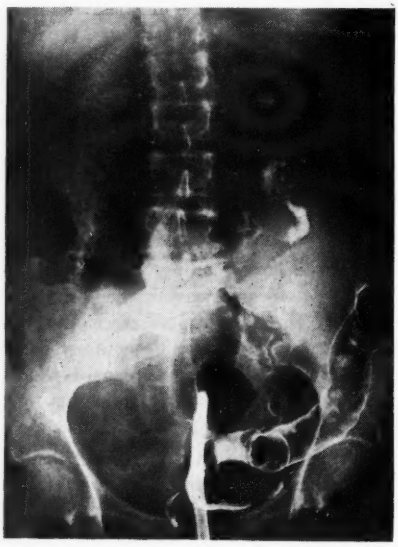

Fig. 3. Case 1—Air contrast study showing further definition of lesion with pressure of sigmoid.

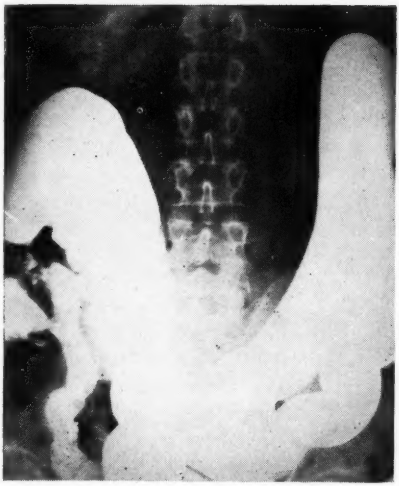

Fig. 4. Case 2—Barium study showing obstructing lesion of right colon.

upper quadrant of the abdomen.

An x-ray survey was suggested but was refused.

In September of the same year, she became alarmed because of a rapid loss of weight, generalized fatigue, and bleeding from the rectum. Only then was hospitalization accepted. Her hemoglobin was 42 per cent with 3,110,000 RBC's. The gallbladder contained several calculi, and a contrast media examination of the colon demonstrated an obstructing lesion involving the ascending colon. This mass extended into the cecum and was cauliflower-like in appearance.

Surgery was advised but was deferred by the patient. She returned to the hospital on October 1, 1949, with extensive hemorrhage from the bowel. The hemoglobin was again down to 43 per cent with a 3,600,000 RBC's. Two pints of blood were given immediately and one pint daily for the next three days. During this time she was prepared for bowel surgery. The blood count on October 5th was 4,450,000 RBC's and the hemoglobin 74 per cent.

An annular constricting lesion of the ascending colon was found on opening the abdomen on October 7th. This mass was adherent to the lateral abdominal wall. The nodes in the mesentery were involved adjacent to the lesion. However, the distal nodes were grossly negative. A right hemicolectomy was done. The section removed included twenty-seven centimeters of distal ileum and the entire right colon to the mid-transverse colon. A side-to-side anastomosis of the ileum and transverse colon reestablished continuity of the bowel.

Except for a small incisional abscess that developed on the tenth postoperative day, the postoperative course was uneventful, and she left the hospital on the twenty-first day.

The gross specimen measured fifty-three centimeters in length.

Microscopically, a relatively highly malignant adenocarcinoma was demonstrated. The malignancy had definitely infiltrated as far as the serosa and in one small area to the pericolic tissue. The lymph channels were clogged with malignant cells. The lymph glands sectioned showed only inflammatory hyperplasia.

The patient was examined at monthly intervals for the next eighteen months. She gained fifty pounds during this time, and she appeared quite well.

A stool examination done one and one half years postoperatively showed four plus benzedine reaction after four days of a meat-free diet. Double contrast studies of the colon showed the anatomosis to be functioning well. There was no evidence of any tumor. Proctosigmoidoscopy to twenty centimeters was negative.

The patient was admitted to the surgical service on January 3, 1952 with symptoms of small bowel obstruction. She was treated with continuous Wangensteen suction, fluids and electrolytes. Normal bowel function returned in forty-eight hours and feedings were started by mouth.

A colon study was done on January

9th. No evidence of a neoplastic lesion was found but a partial obstruction of the ileum could be demonstrated.

She returned to the hospital on February 10th with the same symptoms. After ten days of decompression and adequate preoperative preparation, she was submitted to surgery.

The ileum and jejunum were matted together with multiple areas of adhesions. After freeing these, a loop of distal ileum near the original anastomosis was found adherent to the right lateral abdominal wall. In attempting to free this area, multiple small areas of stony hard nodules were found to be present in the parietal peritoneum and in one small section of the ileum. The ileum was accidentally opened in this area. Sixty-five centimeters of ileum was resected and a lateral anastomosis was performed to reestablish continuity.

Following surgery, the patient developed a lower nephron syndrome with complete anuria. In spite of all attempts to restore kidney function, the patient died as a result of a lower nephron nephritis.

Microscopic sections of the indurated area revealed a rapidly growing adenocarcinoma of metastatic origin.

Fig. 5. Case 2—Air contrast study further demonstrating lesion of right colon.

Case 3. W. C. M., a well-developed, well-nourished, white, female, age 51, became acutely ill with vomiting and diarrhea on February 2, 1950. She recovered rather slowly from this illness and returned to work in about three weeks. Six weeks later she had a recurrence of the same symptoms. All physical findings were essentially negative. Because of a recent vacation in the South, a complete parasitical survey was done. The results of all these tests were negative.

During convalescence, the patient became ill with a viral pneumonitis which was confirmed by x-ray examination of the chest. She responded slowly to antibiotic therapy. Night sweats were frequent and the patient continued to run a low grade temperature for many weeks.

Early in May, 1950, she complained of pain in the left upper quadrant. A mass was then felt in the region of the spleen.

An internist saw her, and he believed that from the history and physical findings the mass was either a hypernephroma or a polycystic kidney. Genitourinary studies disproved this theory. Proctosigmoidoscopy was negative. The bowel was examined with double contrast media. The distal colon filled with difficulty because of the presence of pressure from an obstructing mass in the transverse colon. This defect in the descending colon remained constant throughout the examination.

After adequate preparation, the patient was submitted to surgery on May 19, 1950. On opening the abdomen, it was found that the left colon and mid-colon and small bowel formed a large mass completely adherent with inflammatory adhesions. No attempt was made to free this area. The sigmoid was mobilized, as was the entire left colon to the mid

Fig. 6. Case 3—Barium study of colon showing lesion of descending colon.

transverse segment. The loops of proximal and distal ileum and colon were transected and the entire mass removed in toto. A side-to-side anastomosis of the ileum and end-to-end anastomosis between the sigmoid and transverse colon was performed.

A rather uneventful recovery was experienced by the patient, and she was discharged on the twenty-first postoperative day.

The gross specimen measured twenty-five by twenty by fifteen centimeters. One portion consisted of a loop of ileum measuring fifty centimeters in length. The central area of the loop was enlarged to form a mass eight centimeters in diameter. On the mucosal surface of the opened ileum, the mass arose from the mucosa and extended into the lumen for five centimeters and involved fourteen centimeters of the loop. The mucosal surface was necrotic and ulcerated. On sectioning, the mass was found to extend through the wall of the ileum, through the serosa, and into the adherent section of the colon.

The loop of colon measured fifty-one centimeters. At the point of extension with the tumor of the ileum, the circumference of the colon measured 6.5 centimeters, and the lumen was almost completely encircled by the mass. This mass measured seven centimeters along the vertical axis and four centimeters on the transverse axis. When the loop of ileum was separated from the colon, a pocket filled with yellowish gray purulent material was found.

Microscopically an adenocarcinoma of both large and small bowel was demonstrated, but there was no direct connection between the two masses. The adenocarcinoma involved the mucosa, submu-

Fig. 7. Case 3—Postexpulsion roentgenogram demonstrating lesion more clearly with pressure from small bowel on descending colon and sigmoid.

cosa, and muscularis but not the serosa or pericolic tissue. The lymph nodes showed inflammatory changes, but there was no definite evidence of metastasis.

In retrospect, the symptoms of vomiting and diarrhea, the abdominal pain, the night sweats, and the low grade temperature were initiated by the formation of the abscess. The extreme size of the mass, in all probability, was due to the inflammation attending the abscess formation.

This patient is now well and active in her occupation. Her weight is well maintained at 136 pounds. The size, character, and color of the bowel movements are normal. No further x-ray studies have been done since her discharge from the hospital. However, to complete a good follow-up of this case, these studies should be pursued. The difficulty rests in convincing the patient that such studies are necessary even though there are no apparent symptoms to warrant such a procedure.

Summary

1. The symptoms and physical findings attending carcinoma of the colon are reviewed.

2. Statistical information culled from the recent literature pertaining to the occurrence of these signs and symptoms is related.

3. Three cases of carcinoma of the

Fig. 8. Case 3—Specimen removed, demonstrating colon lesion in upper portion and small bowel lesion in lower half of picture. Note that there appears to be no direct connection between these two lesions except for fistula between small bowel and descending colon.

colon are presented, one case having a coexisting and independent lesion of the ileum.

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A Critical Evaluation of Subtotal Gastrectomy for the Cure of Cancer of the Stomach

Gordon McNeer and associates *Annals of Surgery,* [*134*:2(1951)] report a study of the autopsy protocols of 92 patients who had survived a subtotal gastrectomy for gastric cancer. The autopsy showed a recurrence of cancer in the gastric "remnant" in 46 cases, or 50 per cent; the period of survival after subtotal gastrectomy varied from two to seventy-five months in these cases. In 14 cases there was a recurrence of cancer in the duodenal stump, but in 5 of these cases there was also a recurrence in the gastric remnant and these are included in the previous group, so that in only 9 cases was the local recurrence limited to the duodenal stump. In 48 cases, there was local metastasis to the perigastric lymph nodes and gastric bed; in 29 of these cases, there was also a local recurrence in either the gastric remnant or duodenal stump (included in the previous groups), but there were 19 cases in which the local malignancy was present only in the perigastric nodes and gastric bed. As there was a recurrence in the gastric remnant in 50 per cent of the 92 cases studied, and recurrence in the duodenum in an additional 9.8 per cent, with local metastases in an additional 20.7 per cent, the subtotal gastrectomy had failed to control the local process in 80.5 per cent of this series. There were distant metastases in 14 patients, but whether these metastases were present at the time of the primary operation or had resulted from the local recurrence could not be determined. There were only 4 cases in which there was neither local recurrence or metastases. If it is assumed that there is a five-year survival of 30 per cent after subtotal gastrectomy, the cases studied at autopsy represent the remaining 70 percent; and since a local recurrence developed in 80.5 per cent of this group, it can be assumed that such a recurrence developed in 56 per cent of the total group that survived subtotal gastrectomy, indicating that "about half" the patients who survived subtotal gastrectomy "may have been denied a chance of cure because of inadequate surgery." These findings indicate in the authors' opinion, that total gastrectomy is "the most logical operation" for gastric cancer.

Thiouracil Compounds in Ulcerative Colitis

Thiouracil was administered orally to 8 patients with ulcerative colitis in doses of 200 mg. three times a day. Propylthiouracil was administered to 7 similar patients in doses of 100 mg. three times a day. Treatment was necessary for 1 to 4 weeks before any significant signs of remission were evident, according to Herfort and Livingston in *N. Y. St. J. Med.* [*52*:431(1952)].

Anorectal Surgery Preoperative and Postoperative Care

We must distinguish between immediate and early ambulation before entering into a discussion of postoperative management. *Early* ambulation is now the rule in practically all hospital surgery. *Immediate* ambulation is preferred in the management of office procedures. It is understood, of course, that office procedures in anorectal surgery include extensive hemorrhoidectomy, fistulectomy, surgery of prolapse, pilonidal cyst excision, etc. When the patient is operated in office or hospital, immediate ambulation is the preferred procedure. Caudal analgesia allows for ambulation within 45 minutes after the completion of most anorectal surgical procedures. Meticulous surgical technic and hemostasis, the availability of the newer hemostatic agents and antibiotics, combined with routine caudal analgesia, makes it possible to employ immediate ambulation either in office or hospital practice.

PREOPERATIVE ORDERS

Sedation and Anesthesia To assure a good nights rest the day before an elective operation a 3 grain capsule of sodium Amytal, or comparable hypnotic, may be prescribed. A 1½ grain capsule of Nembutal, or comparable hypnotic, may then be taken 2 hours, and again 1 hour before surgery if the patient is hospitalized. It is best to omit both of these if the patient is to be operated in the office, and is to drive home after surgery. If the patient is not to drive, one or both of the latter doses may be administered.

When the patient presents an acute anal ulcer, prolapsing thrombotic hemorrhoids, gangrenous internal hemorrhoids, or other relatively acute pathology at the time of his first visit, a capsule of Nembutal (1½ grains) may be taken before surgery. Nembutal acts relatively slowly, and at least one hour is necessary before an appreciable effect is observed in most patients.

In addition to preoperative Nembutal, the hospitalized patient may be given ¼ grain of morphine sulfate and 1/150 grain of atrophine sulfate by hypodermic injection one hour before surgery.

Breakfast is omitted in all cases. Occasionally a patient will require surgery in the office when there has been no adequate opportunity for either preoperative sedation or for instruction as to omission of breakfast. This patient may vomit. There are usually no harmful effects from this vomiting. Indeed, the patient usually feels very much better after emptying the stomach.

Preparation In elective cases the patient should be ordered to take a plain tap water enema the night before surgery. Soap is irritating, and should never be recommended for enemas. A 14 to 16 F catheter may be used, and should be thoroughly lubricated and gently inserted for no more than three inches into the rectum. Irrigation should continue until the return flow is clear, regardless of the amount of

water required. The patient may lie on the left side, on his back, or may sit on the bowl, or stand with back bent at the hips. The water container should be about three feet above the anus.

Water is allowed to flow in until cramping starts. Then the flow is stopped, but the patient is instructed not to expel. When the cramps cease, the flow is started again. This intermittent flow is continued until the patient can hold no more. He then expels. This procedure is repeated until the return flow is clear.

Sulfonamides and Antibiotics It is not often necessary to employ either sulfonamides or antibiotics in preoperative preparation of patients for ambulatory proctologic surgery. The use of these agents in preparation for colonic surgery will be discussed in a later section.

Fortified penicillin is employed routinely postoperatively. This preparation contains 300,000 units of aqueous procaine penicillin G for prolonged action, and 100,000 units of crystalline penicillin for an immediate effect. This may be further fortified by 0.5 grams dihydrostreptomycin, if indicated. This dosage is repeated on the first postoperative day. In the presence of acute or chronic infection penicillin therapy is continued daily or on alternate days until the infection is controlled.

POSTOPERATIVE CARE

Dressings Furacin Soluble dressing (containing 0.2% nitrofurazone in a water soluble base) provides an excellent antibacterial dressing. The dressing may be held in place by a T binder or by broad adhesive straps. The strapping is removed in 24 hours, and is replaced by T binder or by a sanitary napkin and elastic belt dressing.

Compresses If an oil-soluble anesthetic has been employed, there will be little postoperative discomfort. Hot witch hazel compresses are comforting, promote healing and prevent postoperative edema.

First Bowel Movement The patient is told not to move his bowels until the second or third postoperative day, depending upon the nature of the surgery. The average person controls bowel movement without drug assistance. If a constipating medication is required, camphorated tincture of opium (paragoric), in 15 drop dosage every 3 or 4 hours is recommended.

One ounce of mineral oil is taken the night of surgery, and the following evening. This dosage does not stimulate bowel movement, but merely lubricates the initial passage at the proper time. If the patient tends toward constipation one ounce of milk of magnesia may be taken in addition to the mineral oil the night before the planned bowel movement.

If necessary, a mineral or olive oil instillation may be given on the morning of the anticipated bowel movement. This oil may be mixed with an equal quantity of warm water if desired.

A bulk psyllium seed preparation such as Konsyl or L. A. Formula is prescribed for the next two or four weeks. This preparation provides internal dilation during the healing period, as a consequence of the bulky stool. This prevents excessive narrowing by scar tissue or adhesion.

Pain Infiltration with an oil-soluble anesthetic at the time of surgery usually provides a relatively painless postoperative course. If this protection is not employed a capsule containing ¾ grain Demerol, 1/12 grain Dolophine, and 1/20 grain Dilaudid is recommended. One capsule is given immediately after operation, and a second one after one hour if pain persists or returns. Three grains of sodium Amytal may be given with the second capsule, to produce restful sleep.

Occasionally there will be marked postoperative pain despite infiltration with an oil-soluble anesthetic. When the patient is markedly hypersensitive hypermotility and hypersecretion of the colon may develop. This will produce distress in the abdominal or operative areas.

Always search for evidence of urinary retention in such cases. Catheterization may be required. In an effort to avoid catheterization the patient should be instructed to sit in a tub of hot water, bandage and all, and to attempt urination while sitting in the water.

If pain persists beyond the first 24 hours, in a patient who has had an oil-soluble anesthetic injection, search for evidence of secondary infection. The pressure of a forming abscess may be the source of such pain. Fortunately, this complication is relatively uncommon.

Sitz Baths The patient is instructed to sit in a basin or tub of warm water (about 110°F.) for 10 to 30 minutes night and morning, and after each bowel movement. When the patient is at business, it will be possible for him to take a sitz bath only morning and night. After the bowel movement he is instructed to cleanse the area with wet absorbent cotton.

The patient is advised to apply a chlorophyll ointment such as Chloresium, to stimulate healing and reduce odor. The dressing is completed by a sterile gauze square and overlying sanitary pad.

Office Care It is best to avoid digital manipulation within the operative area for the first two postoperative weeks. Secondary bleeding, if it is to occur, is usually noted during the second postoperative week.

If there is evidence of infection Furacin Soluble ointment is employed. To hasten healing and reduce odor Chloresium may be indicated.

An ointment consisting of 4% scarlet red, 0.5% tetracaine base, and lanolin or vaseline, is healing, soothing, and antiseptic in action. Clothing must be protected against the scarlet red stain.

Aqueous procaine penicillin G (300,000 units) is administered intramuscularly daily in the presence of infection. 0.5 gram dihydrostreptomycin may be added to the antibiotic medication if indicated. Active infection would also require the use of fortified penicillin, containing 100,000 units of crystalline penicillin in addition to the 300,000 units of aqueous procaine penicillin G.

Internal digital exploration to break down adhesions and to apply a healing ointment is begun on the 10th to 14th postoperative day. Careful massage of any observed area of scarring is necessary to increase flexibility.

The thermal cutting unit or silver nitrate stick may be necessary to destroy excessive granulation tissue.

A printed postoperative instruction sheet should be provided for the ambulatory patients. Instructions for the day of operation read as follows:

1. Take one ounce (whiskey glassful) of mineral oil each night, beginning tonight.

2. You may eat any food other than fruits, fruit juices or raw vegetables.

3. Tomorrow you may eat all foods, including fruits, fruit juices and raw vegetables.

4. DO NOT move your bowels until you are told to do so.

5. You will receive a prescription for pain. Take one capsule. If you continue to be uncomfortable, take another capsule one hour later. Do Not Take These Unless You Are In Pain.

6. If you need the second pain capsule, take the sleeping capsule with it.

7. You will also receive a capsule for sleep. Take it at bedtime. If you waken during the night take another.

8. Buy Kotex (or other sanitary napkins), an elastic sanitary pinless belt and sterile gauze squares. Bring the pads and belt to the office at the time of your first visit.

The day after surgery the patient is presented with a new instruction sheet, reading as follows:

1. Do not move your bowels until tomorrow.

2. Continue mineral oil until you have had your first bowel movement.

3. Then stop mineral oil and begin {Konsyl / L. A. Formula} as follows:

Take {one rounded teaspoonful / one heaping teaspoonful} of this preparation twice daily, stirring it into a full glass of water, fruit juice or milk. Take once after breakfast and again after the evening meal. A second glass of liquid may be taken if desired.

4. Sit in hot water, in a tub or other container, for ten minutes after each bowel movement. The water should be as hot as you can comfortably bear. Test it with your elbow. The elbow can stand approximately 110 degrees F.

5. You need no longer restrict your diet. You can now eat fruits, fruit juices and raw vegetables as well as other foods.

6. If your bowels become too active, stop or reduce the intake of fruits, fruit juices, and raw vegetables.

SUMMARY OF TECHNIQUE

AMBULATORY	HOSPITAL
1. 1½ grain Nembutal or 3 grain sodium Amytal capsule the night before surgery.	1. Same
2. Tap water enema the night before operation.	2. Same
3. Nembutal, 1½ grains, 2 hours and again 1 hour before surgery in selected cases.	3. 1½ to 3 grains 2 hours and 1½ grains 1 hour before surgery: ¼ grain morphine sulfate and 1/150 grain scopolamine 1 hour before surgery by hypodermic.
4. Shaving at operation.	4. Shaving the night before.
5. Oil-soluble anagesia at operation, with local or caudal infiltration.	5. Oil-soluble analgesia, with low spinal, local or caudal infiltration.
6. Pressure-pack strapped in place.	6. Same or T binder.
7. Pad and belt dressing after straps are removed.	7. Same or T binder.
8. Analgesic capsule containing ¾ grain Demerol, 1/12 grain Dolophine, and 1/20 grain Dilaudid. One for pain, repeating after one hour together with 3 grains sodium Amytal if necessary.	8. Same, or ¼ grain morphine sulfate by hypodermic.
9. Mineral oil, one ounce the evening of surgery, repeated the next evening.	9. Same
10. Milk of magnesia, one ounce on the third night if no B.M.	10. Same
11. Olive or mineral oil instillation on day of first bowel movement.	11. Same
12. Bulk laxative such as Konsyl or L.A. Formula for internal dilation, 2 to 4 weeks.	12. Same
13. Digital examination on 10th to 14th day.	13. Same

7. If you do not have a bowel movement tomorrow take one ounce of milk of magnesia tomorrow evening in addition to the mineral oil you have been taking. Unless otherwise instructed, take milk of magnesia ONLY on this occasion.

8. If you still do not have a bowel movement the day after taking the milk of magnesia and mineral oil, then you must take an enema. Use a catheter (which you can purchase in a drug store) rather than a bone tip, and lubricate it with a large quantity of vaseline. Do not insert more than two inches of the catheter. Use plain warm water.

9. Bleeding may occur as a result of the stitches coming out. Do not be alarmed. This is normal.

Frequent Causes of Chronic Constipation:

1. The urge to move the bowels is ignored.
2. Insufficient water is taken.
3. Insufficient food bulk.
4. Irregular eating habits.
5. Nervous tension and worry.
6. The laxative habit.
7. Insufficient exercise.

To Correct This Type of Chronic Constipation:

1. When you feel the urge to move your bowels attend to it at once. Stop work or play and go to stool.

2. Set a definite daily time for bowel evacuation. Don't hurry the process. A foot rest might help in increasing your comfort and raising the knees.

3. Relax. Don't strain.

4. Eat meals at regular hours. Eat slowly and chew food well.

5. Eat five raw fruits every day, two large green vegetable salads, a glass of fruit juice, and whole wheat bread.

6. Drink two glasses of water upon arising, and four to six additional glasses during the course of the day.

7. Sleep eight hours. Arrange to rest after each meal.

8. Relax during the day by changing your pace, and varying your work.

9. Take a brisk walk daily.

10. A bowel movement every three days is normal if the stool is not hard. You don't need a daily movement to be healthy.

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Neomycin Therapy in Amebiasis

Four of 7 patients with amebiasis caused by *E. histolytica* were cured with a single course of neomycin totalling 1,600,000 units. The 3 remaining patients were cured by an additional course of therapy in which 4,800,000 units of neomycin were given. All of the patients showed rapid healing of amebic ulcerations and disappearance of the parasites and, all of the patients remained free from *E. histolytica* for a 3-month observation period following the termination of therapy.

McVal, Laird, and Stern reported in *The Am. J. Med. Sci.* [*223*:20(1952)] that the only significant toxic reaction observed as a result of therapy with neomycin was a transient rise in the protein level in urine and an elevation of blood protein and blood urea nitrogen in one patient. However, the authors pointed out that further investigation of the toxicity of neomycin should be undertaken before its use on a wide scale. They noted also that there was an enormous increase in the yeast cells in the whole series of patients. This reaction is thought by some to be an important cause of the nausea, vomiting, and diarrhea often associated with the administration of neomycin.

Fistulas

In this section of the Atlas of Proctologic Surgery we will deal primarily with the more extensive types of fistulas. There will be consideration of the fundamental anatomy of fistula formation, the approach to direct tract fistulas, and the more unusual types of fistula. However, the complicated anorectal fistulas involving several openings and multiple tracts, will not be considered in this issue. The reader who is especially interested in these types of fistula cases is therefore referred to the second edition of the author's text, Ambulatory Proctology (Hoeber), now on press. The final Atlas, of course, will also include a description of these fistulae.

Figure 1. In this figure we see the origin and development of anal fistulae.

Figure A demonstrates the usual site of original infection. This infection begins in the anal ducts and glands leading into the anal crypts. Infection may then extend downward, as in Figure B.

Figure C demonstrates another route of extension with the formation of an abscess cavity. When this abcess ruptures to the surface, or is incised, a complete fistula will result.

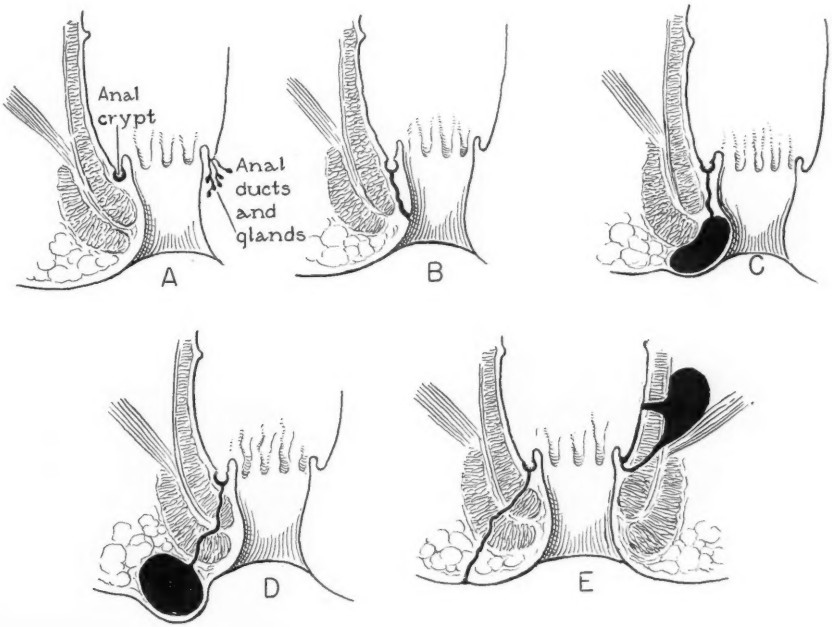


Figure 1

In Figure D we see still another route of extension, through the spincters, to form an abscess in the ischio-anal location.

Figure E demonstrates the end result when this abscess ruptures or is incised. It also demonstrates another avenue of extension upward to an abscess in the supralevator space. This abscess may then rupture through at a higher level, as illustrated.

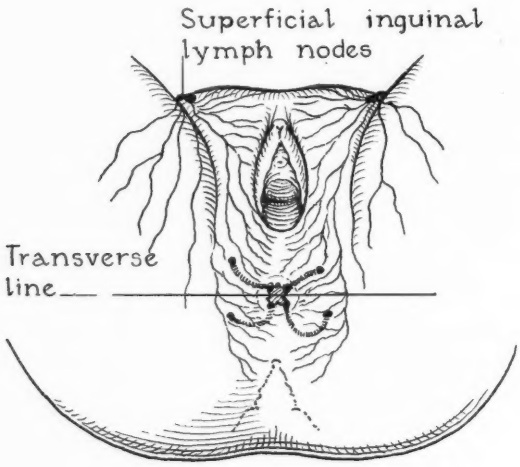


Figure 2

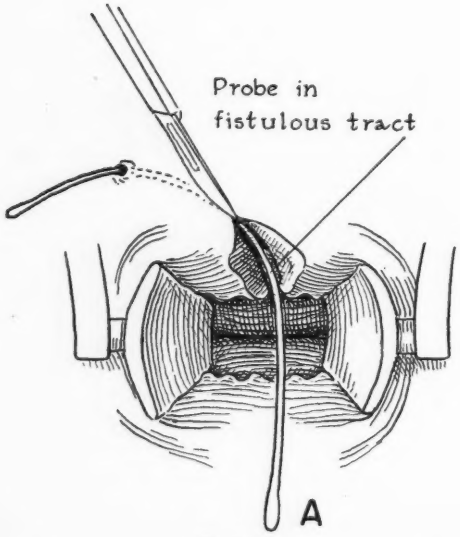


Figure 3

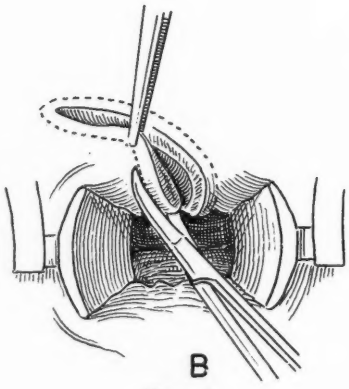
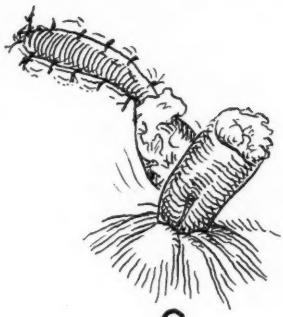


Figure 4



C

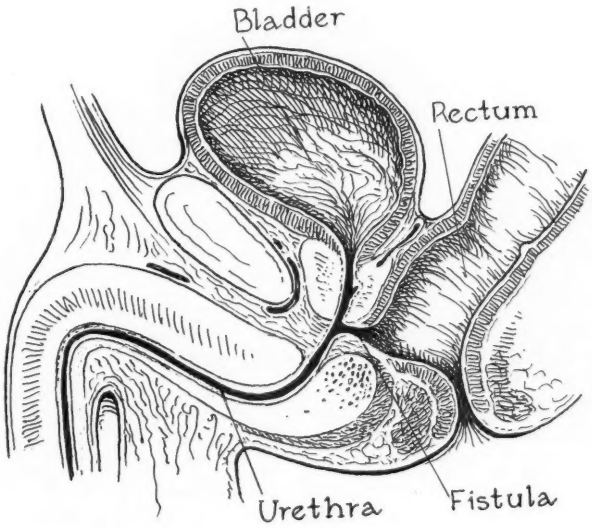
Figure 5

Figure 2. This illustrates the perianal lymphatics in the female, and Goodsall's rule. An arbitrary, imaginary transverse line is drawn through the center of the anal opening. If the external opening of the fistula is behind this line the internal opening will usually be in the mid-line posteriorly, as illustrated. If the external opening is anterior to this line, the internal opening is usually directly opposite, forming a straight tract. The curved course of the posterior fistula, and the straight course of the anterior fistula, may be explained on the basis of the direction of lymphatic drainage.

Figures 3, 4 & 5. (A, B, C.) We see illustrated the surgical steps in the management of a complete fistula. The technique is modified from Nesselrod, Proctology in General Practice, Saunders, 1950, page 133. This technique is a fistulotomy rather than a fistulectomy.

In Figure 3A we see a probe in the fistula, and a scalpel incision is being made. The operating anoscope is the N. D. Smith. The probe lies freely in the fistulous tract when the incision is completed.

Figure 4B illustrates the cutting away of overhanging skin margins by means of tissue forceps and scissors. The fistulous tract is thus converted into a shallow, open



A

Figure 6 (A)

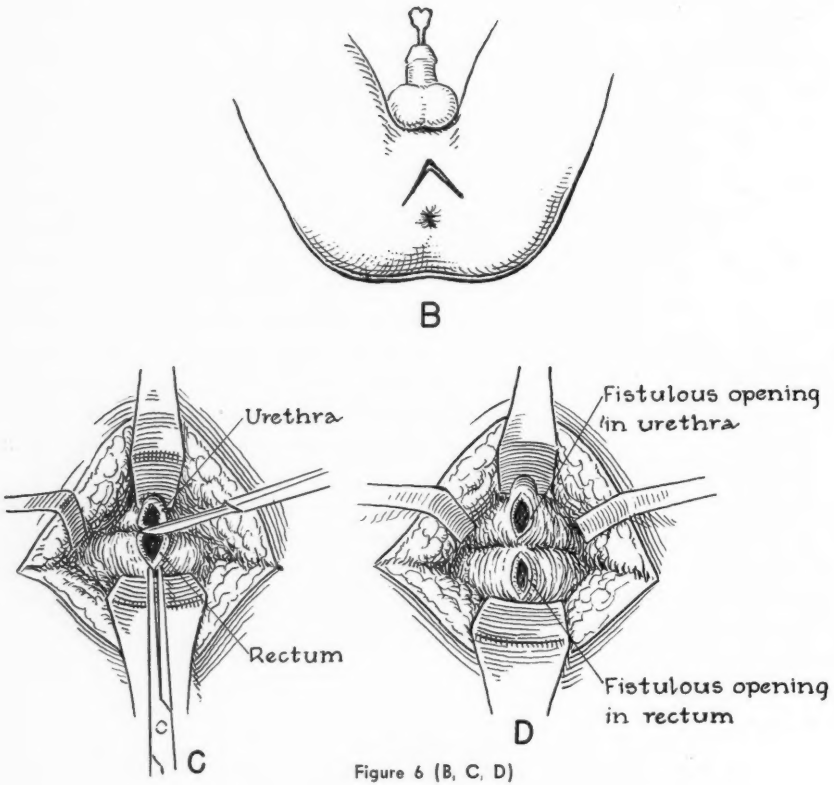


Figure 6 (B, C, D)

wound. It will be observed that the deeper half of the fistulous tract remains, and is thus exteriorized.

In Figure 5C. we see the Buie technique in which the margins of the remaining fistula wall are sutured to the adjacent skin margins. This is done only for the distal part of the tract. The remainder of the wound is packed and a drain inserted into the anus.

Editorial Comment: It is this author's opinion that the excision operation of fistulectomy is preferable to fistulotomy. I believe it best to excise abnormal tissues, rather than to incorporate it into the patient's normal anatomy—as is done in fistulotomy—particularly with suture.

The fistulectomy wound should never be sutured.

Figure 6 A. Here we see a recto-urethral fistula.

Figure 6 B, C & D. In these three figures we see the technique of Lowsley, O. S. and Kirwin, T. J. for the correction of a recto-urethral fistula. With the patient in lithotomy position, a skin incision is made as illustrated. Note the metal sound in the urethra. Dissection is carried through this incision until the fistula is found.

A finger in the rectum, pressing on the anterior rectal wall, will assist in this dissection.

When the fistula is adequately exposed, as illustrated in figure C, the tract is divided. The patient now presents a urethral opening and a rectal opening.

This is most clearly illustrated in figure 6 D. Fine plain catgut sutures are used

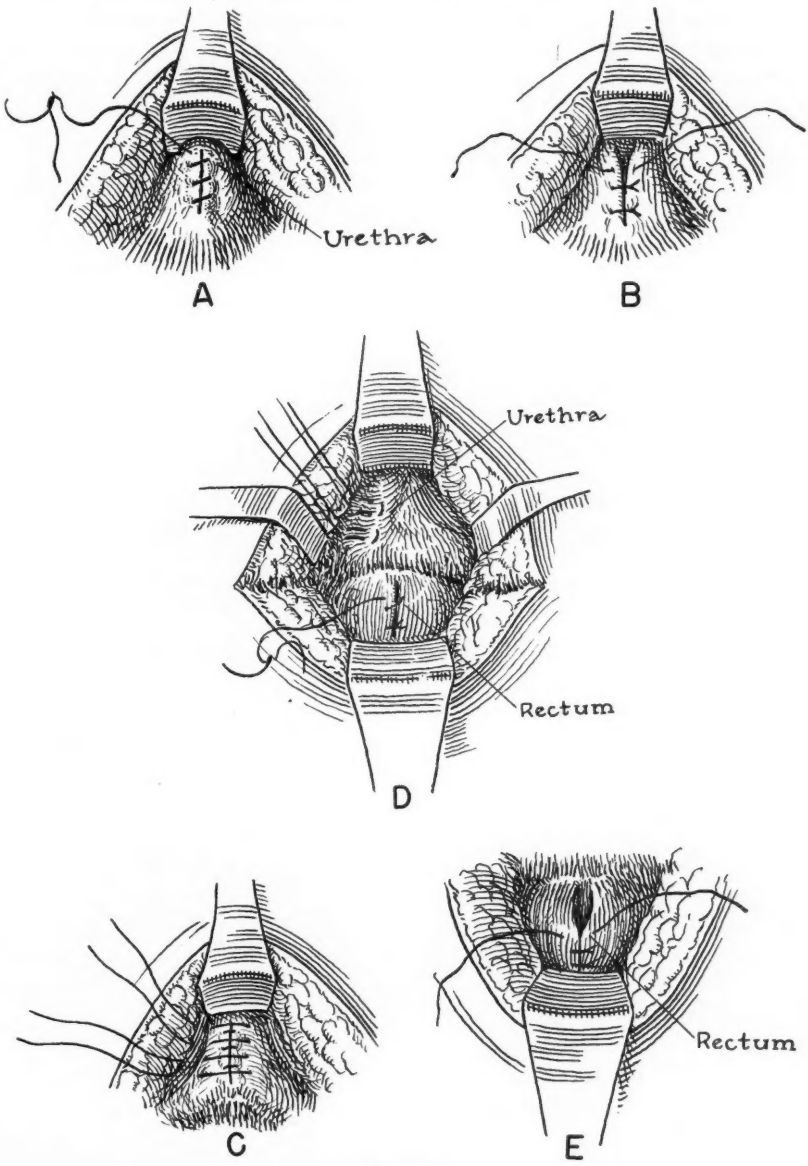


Figure 7

to close the urethral orifice at the mucosal level. Chromic catgut or alloy steel wire is used for closure of other layers.

The fistulous opening in the rectum is closed in this same fashion. It is an important feature of this technique that the wounds be drawn to opposite sides during closure. This is an additional safeguard against re-establishment of the fistula during the healing period.

Number 32 gauge interrupted wire sutures are advised for perineal tissues and number 35 for skin, leaving a small perineal gauze drain in place for two or three

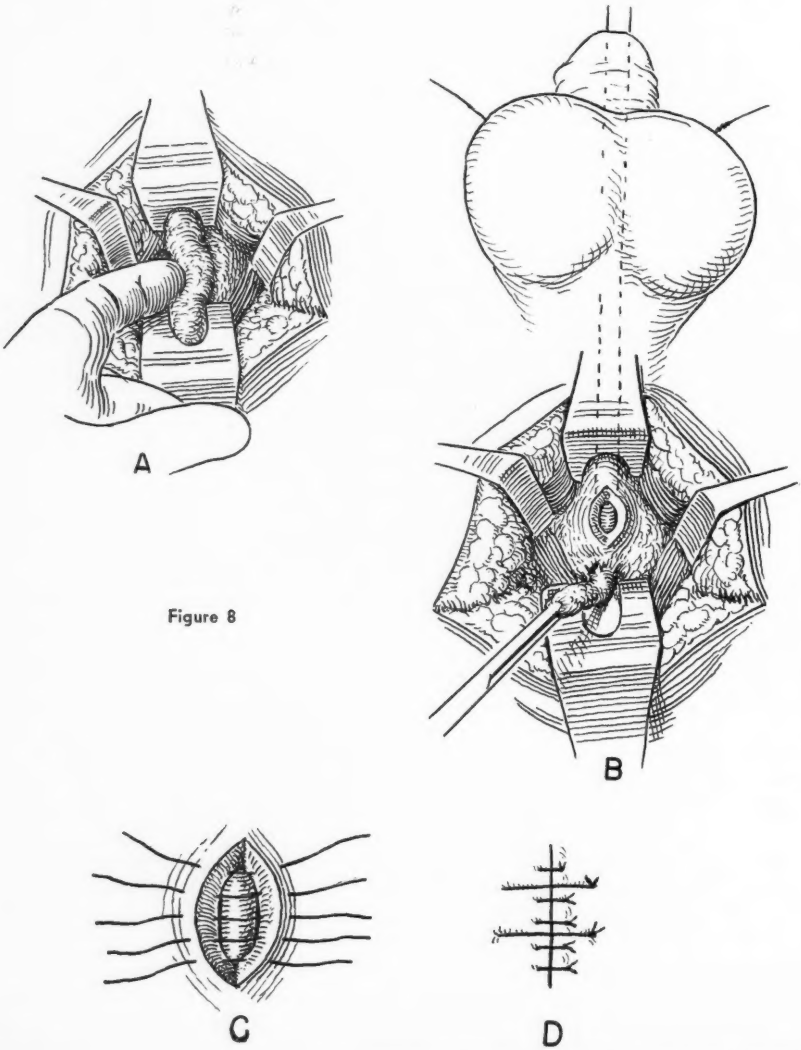


Figure 8

days. The final stage is divulsion of the sphincters.

(Before performing the surgery illustrated in Figures 6 A, B, C, D,—a preliminary suprapubic drain is inserted and a colostomy is performed. With both urinary and fecal streams thus diverted, the surgery for recto-urethral fistula may be performed.)

Figures 7. A, B, C, D, E. These figures illustrate the closure above described in the Lowsley and Kirwin operation for recto-urethral fistula. In Figure A we see the sutures inserted for closure of the urethral fistulous opening. Figure B illustrates the re-enforcing sutures of the second layer. In Figure C sutures are placed to draw the urethra to the right. Figure D shows the urethra in its new position, the opening now being fully closed. The first layer of sutures is being placed for closure of the fistulous opening in the rectum. Figure E illustrates the re-enforcing sutures in the rectum. (Figures 6 and 7 are modified from Clinical Urology, Baltimore, Wilkins, 1944, page 695, Lowsley, O.S. and Kirwin, T.J.)

Figures 8 A, B, C. After Watson E. M. and Knapp L. S. Urology 49:488, 1943.

Again the first step is a suprapubic cystotomy to divert the urinary flow. A "sound tractor" is introduced into the urethra. This tractor is seen in place in figure 8 B.

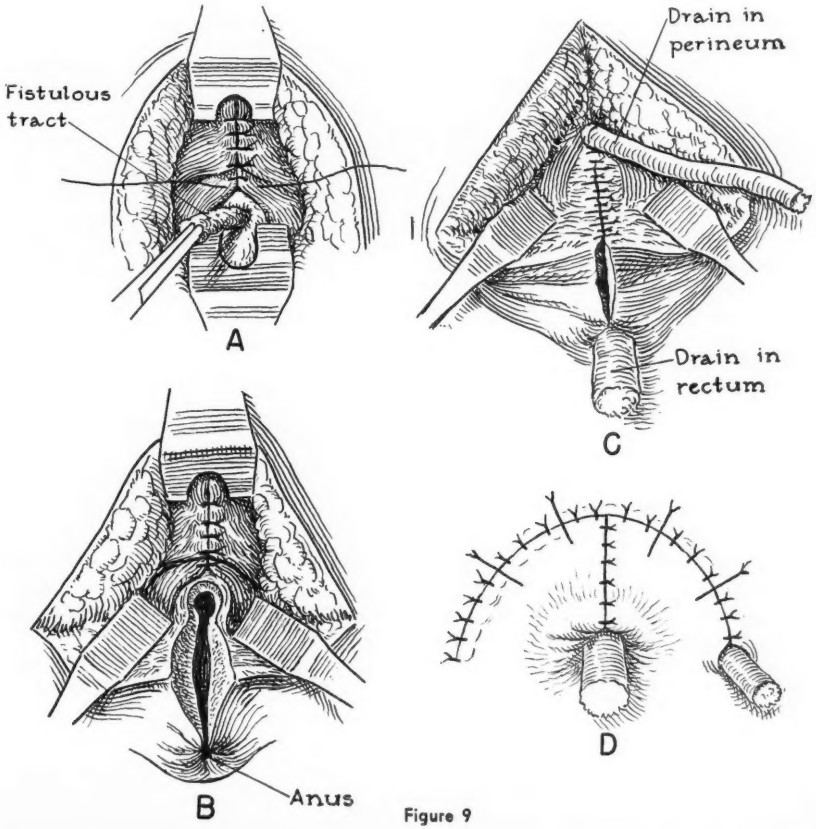


Figure 9

A curved incision is now made in the perineum and ischiorectal fossa. This is deepened to isolate the fistulous tract and to expose the lateral margins of the prostate. The fistulous tract is dissected bluntly as illustrated in figure A, using the finger. Blunt dissection of this type mobilizes at least a half inch of rectum above the rectal fistulous opening.

A special bifid prostatic tractor is then placed cephalad to the rectum as illustrated.

In Figure B we see the excision of the fistulous tract. The tract is first cut away from its opening into the urethra and the urethral margins are approximated by two interrupted chromic suture lines, as shown in Figures C. and D.

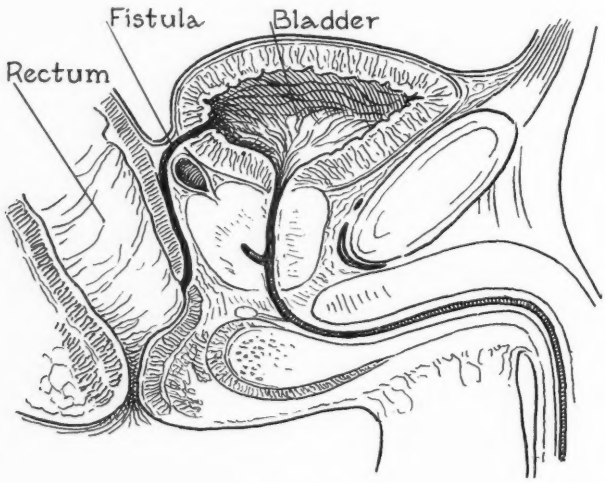


Figure 10

Figures 9 A, B, C, D. Illustrates the closure of the perineal space. In figure A the transverse perineal and levator muscles are sutured over the urethral closure. Figure B: With the finger in the rectum the rectal fistula opening is found. A fistulectomy is then performed, cutting across the sphincter.

The fistulectomy wound thus produced is now closed by a double row of chromic one catgut. This is illustrated in figure C. Notice the drain in the perineum and also in the rectum.

Final closure is shown in figure D, and simply involves approximation of skin and subcutaneous tissues.

Figure 10. Demonstrates a rectovesical fistula. This figure is here included merely to illustrate the pathology.

ALFRED J. CANTOR, M.D.
Flushing, N. Y.

EDITORIALS

The Relationship Between Proctology and Gastroenterology

Several years ago, an editorial was published in the American Journal of Digestive Diseases in which this author described the proper nature of the field of proctology as it is related to gastroenterology. The point of view presented was that proctologists and gastroenterologists work within the same region insofar as their fields overlap in the colon. Of course, the gastroenterologist has a much greater "length of field",—from mouth to anus. However, inasmuch as many diseases of the colon are a consequence of or related to, dysfunction at higher levels in the alimentary tract, it is essential that the proctologist either work closely with the gastroenterologist, or be well informed in this field. Accordingly, the original editorial suggested that proctologists might be classified as proctoenterologists if they were well versed in both fields.

At the present time there is a tendency toward the classification of proctologists as anal-rectal surgeons and colo-protologists. The colo-proctologist does not limit himself to the upper colon, however. operating upon the anus and rectum as well. The anal-rectal surgeon does limit his work entirely to the anus and rectum. The best example of the latter class in the early history of proctology is provided by Dr. Louis Buie of the Mayo Clinic. His surgery has always been confined entirely to the anus and rectum.

The original editorial suggested also that proctologists could be separated into medical proctologists, and surgical proctologists. There are proctologists who do no surgery whatever. These men not only limit themselves to the anus and rectum, but therapy in their hands consists almost exclusively of injection procedures. It is my impression that this latter group is gradually disappearing.

We are not here primarily concerned with the classification of proctologists either as medical or surgical, anal-rectal or colo-proctologists. We are, however, very much interested in drawing the relationship between the gastroenterologist and the proctologist. The proctologist who is thoroughly acquainted with his field, must also be well informed in the field of gastroenterology. Even beyond this, he should be interested in psychosomatic medicine. There is no doubt that the proctologists of the future will be better developed in all these fields. Similarly, the gastroenterologist must know the colon. For example, diarrhea may be a consequence of an achlorhydria. Thus, a proper understanding of differential di-

agnosis in diarrhea may require a study not only of the colon and rectum, but also of the stomach and small intestines, and perhaps a survey of the patient's emotional reactions.

The gastroenterologist may feel that the treatment of diarrheal diseases, and particularly ulcerative colitis, are properly within his province. That is definitely true. However, it is equally true that these diseases are also properly within the province of the proctologist. The same may be said for the intestinal parasites. This does not mean that there should be conflict between gastroenterologists and proctologists. On the contrary, it is most important that gastroenterologists and proctologists work closely together.

Most proctologists do not perform roentgen gastro-intestinal or colon studies. Most gastroenterologists do perform such studies. Therefore, the proctologists may refer those patients who require careful x-ray studies of the colon either to the roentgenologist, or to the gastroentrologist. If he employs the gastroenterologist he will have the added advantage of suggestions from the latter as to further diagnostic studies involving the upper gastro-intestinal tract. Often such studies are of crucial importance, both in diagnosis and in therapy.

The gastroenterologist can assist, not only in advising further roentgen studies of the upper intestinal tract, but in making recommendations as to tube analyses, functional test of liver, gallbladder, etc. It is, therefore, of increasing importance that the proctologist and the gastroenterologist work together in difficult diagnostic problems referable to the colon.

Problems of therapy also allow frequent opportunity for collaboration. The therapy of ulcerative colitis is very difficult in the acute case, as well as in the chronic, debilitated patient. Here, too, the gastroenterologist may offer useful, often life-saving suggestions. The viewpoint of the gastroenterologist has always been broader than that of the average proctologist. He is more apt to consider the patient as a whole. In ulcerative colitis this type of perspective is essential if the patient is to be given every opportunity for recovery and for a useful post-recovery life. The proctologist must either develop this perspective, or employ the gastroenterologist for consultation more frequently. In reverse, problems relating to the colon should call for consultation with the proctologist if the gastroenterologist is the patient's first physician.

Most gastroenterologists perform a very adequate sigmoidoscopy. However, there may be difficult problem cases or sigmoidoscopies that require the special skill of the proctologist. In all such cases, the gastroenterologist should not hesitate to call his colleague in consultation.

The relationship between proctology and gastroenterology needs no further elaboration. A review of one of the stated constitutional objectives of the International Academy of Proctology indicates that this concept was foremost in the minds of the Founding Fathers. "One of the objects of the Academy shall be to advance the practice and study of diseases of the colon and accessory organs of digestion, including those of nutrition." This principle has also guided the editorial policy of the American Journal Of Proctology. To separate the Proctologist from the Gastroenterologist is to produce an artificial dichotomy.

Notes on Body Fluid and Electrolyte

The proctologist, in common with all other surgeons, should be well grounded in an understanding of the basic physiology of body fluids and electrolytes. Although the metabolism of intracellular and extracellular fluid and electrolyte is only incompletely understood there is sufficient knowledge to guide the surgeon in improving his clinical practice. There is

sufficient knowledge to realize that the previous method of advising replacement therapy by one or two electrolytes has been inadequate.

Current studies of magnesium, phosphate and potassium deficiencies should be known to the proctologist. The usual method of replacement therapy has not considered intracellular deficits of magnesium, potassium and phosphate. Thus, if fluids given do not contain these intracellular electrolytes, the patient will not be benefited, and may—indeed—be harmed.

In any case of dehydration, as well as in acidosis or alkalosis, an intracellular potassium deficit should be considered. If isotonic saline (the usual solution advised for extracellular deficit), is given to the patient with a low intracellular potassium content, the potassium cation within the cell is replaced by the sodium cation. This is not good biochemistry, and disturbs normal functions within the cell.

This intracellular fluid is the fluid in which vital functions constantly develop, and the change from potassium to sodium within the cell must disrupt these processes.

The physiologic needs of the particular patient, before, during or after surgery must always be considered. The usual blanket order of saline solution, or glucose in saline intravenously should not be employed. Although the average patient will survive—even the therapy—, the patient with markedly disturbed physiology, either from the disease process or the surgery—or both—, may find himself hard pressed by the electrolyte abnormalities in addition to his other pathology.

The surgeon must regulate not only parenteral water and electrolyte replacement therapy, but also fluids to prevent or treat shock, and to provide nutrition. The best informed surgeon will not operate in major cases without an approximation of the patient's water and electrolyte status.

The history of the obstructed patient, particularly with regard to the amount of vomiting, and the nature of the vomitus, is important. Fluid vomitus must be considered as water and electrolyte loss. A very large amount of potassium may be lost in vomitus of gastric secretion.

Urinary volume must also be considered, and perspiration. Urinary chloride losses should be estimated.

The age of the patient is an important factor. In the aged there is often a decreased blood volume and plasma protein with increased extracellular fluid. This may be considered chronic shock. These patients should be prepared for several days before surgery. Dehydration in these aged patients may result in personality changes, often incorrectly diagnosed as cerebral vascular damage. (If these symptoms are of recent origin they may indicate dehydration.)

The nutrition status of the patient should be considered, and it is not enough merely to study plasma protein. Malnutrition increases susceptibility to shock, and decreases antibody formation. Wound disruption may occur, and wound healing is delayed. The importance of protein in such cases is considerable. Carbohydrate must also be considered, however, for energy requirement, and to spare the protein for more important uses than the satisfaction of caloric needs.

In any consideration of protein metabolism nitrogen balance study is paramount. The urinary nitrogen output should be measured. Disease processes (and surgery) increase nitrogen excretion. To restore a positive nitrogen balance is imperative.

In studying the patient, always look for evidence of dehydration. The patient may be dull, drawn, or evidence fever. There may be a lowered blood pressure.

Clinical evaluation of the patient's physical status, and an adequate history, are even more important than laboratory studies. It is beyond the confines of this

discussion to consider laboratory examinations in more than cursory fashion. Complete blood count, sedimentation rate and hematocrit, urinalysis, urine concentration, quantitative urine chloride and pH, and urine volume every 6 hours, are some of the tests that should be done. Blood urea nitrogen or NPN, serum carbon dioxide content and blood pH, serum sodium, potassium and chloride, and plasma protein with albumin globulin fraction are all important.

Protein metabolism is best determined by a 24 hour urine nitrogen study.

Plasma volume studies may be of value. Careful check should be kept on the fluid and caloric intake, as often as every six hours in patients who are critically ill.

It is beyond the confines of this brief editorial to discuss the therapeutic use of fluid and electrolytes in detail, preoperatively, operatively, and postoperatively. The text of John H. Bland, on the Clinical Use of Fluid and Electrolyte (W. B. Saunders Co., 1952) is recommended. Bland advises diagrammatic visualization of changes in balance of the cation (bases) and anions (acids), and evaluation of the study in terms of milliequivalents. A brief study of Bland's text will illustrate the simplicity and importance of this concept. To quote, "chemical equivalents as units of concentration must be used because the body fluids demand electroneutrality and hence there must constantly exist in all body fluids balance or equality of the sum of the anions (electronegative or acid ions) and the sum of the cations (electropositive or basic ions)."

We should emphasize, however, that the oral route of administration of fluid and electrolyte is the most physiologic. Thus, both preoperatively and postoperatively, this is the major route for restoration of fluid and electrolyte balance. Indeed, the patient should be placed on a properly balanced, full diet as rapidly as possible. Although protein hydrolysate supplements are helpful, they are not very palatable. Protein should be given as milk, eggs and meat as soon as possible.

Protein and caloric requirements can be obtained entirely parenterally, but this is difficult. It requires the use, not only of protein hydrolysate, but whole blood, human serum albumen, glucose solutions, alcohol, and vitamins. Parenteral therapy is therefore an inadequate substitute for proper oral intake. It should become a supplement only as soon as possible.

Use of ACTH in the Management of Peritonitis

ACTH or cortisone was given for 3 to 9 days to 6 patients, ranging in age from 2½ to 77 years, with generalized peritonitis, before and after surgical intervention. Antibiotics, including aureomycin, terramycin or combinations of aureomycin, streptomycin, chloramphenicol, penicillin and sulfonamides, were also given for periods ranging from 8 to 33 days.

Boling *et al.* stated, in *J. Clin. Endocrinol. Metabolism* [*12*:184(1952)], that all of the patients showed prompt improvement during ACTH or cortisone administration. All but one of the patients were discharged in less than 24 days after admission to the hospital. There were no complications but the authors warned that ACTH and cortisone can completely mask advancing pathological conditions and that these substances exert no inhibitory effect on the growth of pathogenic organisms.

The authors also noted that good management of peritonitis was evident in 19 patients treated with antibiotics alone, particularly aureomycin and terramycin. In this group the average period of fever was 6.6 days, the average duration of therapy 10 days, and the average duration of hospital stay 12 days.

Therapeutic Abstracts

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Acute Sigmoid Diverticulitis

It is estimated that one percent of the general population have diverticula of the colon, and that one of every four will manifest disease in them secondary to inflammation. Diverticula result from obesity, chronic constipation, meteorism, and cardiac venous stasis and congestion, according to J. W. Thompson, writing in *J. Internat. Coll. Surg.* [*17*:52-64 Jan. (1952)]. They occur most frequently in the sigmoid region. When the complications secondary to inflammation cannot be controlled, surgery is employed. Cecostomy or transverse colostomy is used to decompress obstructive lesions. The colon with the diverticula is resected and an end-to-end anastomosis performed. Only 15 of 104 patients at the De Paul Hospital were subjected to surgery because of severe complications (peridiverticulitis, perforation, obstruction and fistula).

H. N.

Diverticulitis of the Colon

Diverticula are due to anatomic defects at the sites of the openings in the submucosal layer of the colon, are common in the middle-aged and older persons, and frequently there is a familial tendency to them. An acutely inflamed diverticulum gives the clinical picture of a left-sided appendicitis. Perforation is rare, and may produce generalized peritonitis or adhesions of omentum, small bowel or pelvic viscera (bladder, uterus, tubes, broad ligament). McNealy and Wolfe report that in chronic cases many diverticula reveal recurrent inflammation, may attach themselves to neighboring viscera and sometimes produce intervisceral fistulas in *J. Internat. Coll. Surg.* [*17*:92-95 Jan. 1952)]. If the patient is adequately prepared preoperatively, primary anastomosis can be performed in most instances; but if drainage is employed in the vicinity of the anastomosis (as in abscess, fistula), a colostomy is done first and the continuity established at a later date. H.N.

Surgical Treatment of Carcinoma of the Colon

Carcinoma of the colon is common.
Carcinoma of the colon is curable.
Failure results from late diagnosis.
Late diagnosis can be avoided.
Early diagnosis is easy.

The above statements summarize briefly the present attitude of the medical profession toward carcinoma of the colon. If the entire profession is alert to the frequency of the disease, the ease of its diagnosis and to the fact that fairly standard and acceptable methods of treating it are known and widely used, the great majority of cases of this disease can be cured. Every patient who has any type of bowel disturbance should be examined as a potential sufferer of carcinoma of the colon until proven otherwise. According to John T. Reynolds, M.D., Wayne B. Martin, M.D., Milton H. Brinton, M.D., writing in *Mississippi Valley Medical Journal* [*76*-80 May (1952)], the symptoms of carcinoma of the colon may be listed as follows:

Change in bowel habit.
Alternating constipation and diarrhea.
Sudden, apparently complete obstipation of several days duration.
Rectal bleeding.
Hemorrhoids.
Sense of inadequate emptying of the bowel after stool.
Urgency to defecate, but inability to produce stool.
Unexplained anemia.

The methods of diagnosis besides those of the history are: 1. Digital examination, (2) protoscopic examination with biopsy, and (3) x-ray. Any patient who has carcinoma of the colon with obstruction has two diseases: carcinoma and obstruction. *These two diseases may almost never be treated at the same operation.* Operative relief of the obstruction must be done as soon as possible. The use of conservative means, such as indwelling intestinal decompression tubes, has no place in the care of the acute, closed loop obstruction of the colon. N. A.

Lesions of the Colon

Lesions of the right half of the colon have had a much higher percentage of cures than lesions of the left half of the colon. Statistics are almost astounding if we have no glandular metastases and no vascular metastases in lesions of the right half of the colon. We can almost say with a hundred percent of accuracy that those patients are going to remain well. With glandular metastases probably a five year cure in seventy-five percent of cases may be expected in lesions of the left half of the colon. A complete left hemicolectomy going up to the middle colic artery is done, according to Dr. Karl A. Meyers.

Ulcerative colitis is depressing from the standpoint of the surgeon, and of the general practitioner, Dr. Meyers states in *The Family Physician* [*16*-21, June (1953)]. Diverticulosis is a condition that is very frequent. At least five to eight percent of individuals over forty years of age will develop a diverticulosis, and the location of this lesion is usually in the sigmoid and descending colon because of the retention of the solid content in the left half of the colon with the increased intraluminal pressure during peristalsis. There is undoubtedly an inherited weakness. Acute diverticulitis is definitely to be handled medically but an acute perforated diverticulitis should be operated upon, and a drainage operation is most desired. Another complication that occurs besides perforation is stenosis with colonic obstruction usually in the pelvic colon. The x-ray again is of inestimable value. It is very difficult to differentiate between diverticulitis with obstruction and a carcinoma, or one sometimes has the picture of a carcinoma with a diverticulitis obstruction. These patients will require resection.

In familial polyposis, one had always best do a radical colectomy. If one can clear the rectum of these polyps we can do an anastomosis from the ileum to the rectum and save the sphincter mechanism. It is my opinion that in multiple polyposis of the colon a hundred percent of those patients will ultimately develop malig-

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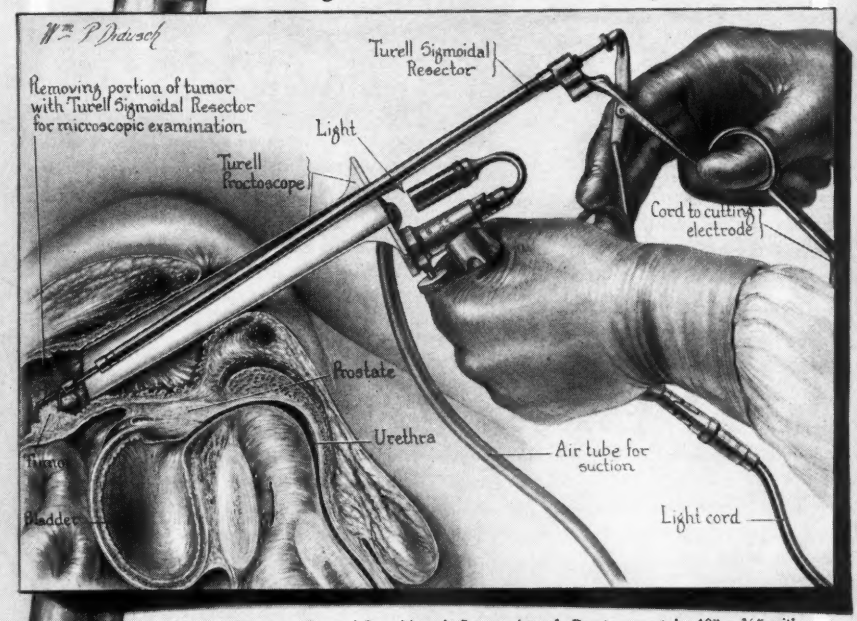

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nancy. Five percent of the patients who have primary carcinoma of the colon have multiple carcinomas and consequently it is imperative to look for these multiple lesions of the colon before and during surgery. N. A.

Roentgenologic Aspects of Diverticulitis and Its Complications

Diverticulitis, a frequent disease after the age of forty, produces numerous intra-abdominal complications, but because infection occurs predominantly in the distal colon, most of the secondary changes will be in the pelvis and left abdomen. These secondary changes are a direct result of infection and give rise to abscesses and fistulas which can communicate with many organs, but most frequently with the bladder. There are also obstructive manifestations. All of these may simulate carcinoma. Eleven representative cases are included which illustrate the more common situations met by the roentgenologist, in the opinion of Russell Wigh and Paul C. Swenson writing in *Am. Jour. Surg.* [*82*:587-596 November (1951)]. D. C. C.

Intestinovesical Fistula

Intestinovesical fistula occurs commonly enough to necessitate, on the part of all the physicians concerned in the management of these cases, a common knowledge of the diagnosis and surgical problems involved. Diverticulitis accounts for about half of the instances of intestinovesical fistula, according to George H. Ewell, *Am. Jour. Surg.* [*82*:597-602 November (1951)]. In patients with diverticulitis in whom urinary symptoms develop, careful consideration should be given to the prospect of possible development of such a fistula. Those fistulae caused by diverticulitis are amenable to surgical treatment and there are few recurrences.

The employment of sulfonamides and antibiotics has made possible the performance of more one-stage operations on those fistulae caused by diverticulitis. A preliminary transverse colon colostomy is very important and simplifies the surgical attack on these fistulae. D. C. C.

Surgical Aspects of Diverticulitis

Surgical intervention is indicated in those patients with diverticulitis who have evidence of acute perforation, abscess formation, obstruction, who have a tumor in the left colon in which malignant disease cannot be excluded, fistulas, repeated hemorrhages, or in those patients who fail to obtain relief of their symptoms by conservative measures. For the patient with an acute perforation, simple closure of the perforation with a proximal diversional colostomy, when indicated, is the procedure of choice. For the patient with abscess formation, incision and drainage, followed by resection of the diseased process after the acute phase of the disease has subsided are indicated. For the patient with obstruction, the three stage procedure; the first a right transverse Mikulicz type of colostomy, the second—resection of the tumor and third—closure of the colostomy, is the usual treatment. In the presence of an obstructing tumor when malignant disease cannot be excluded, segmental resection of the involved area of the bowel and examination of the removed tissue should be done, whenever possible, before a final decision is made as to the operative procedure to be employed. In instances in which enterovesical or other fistulas have developed, the three stage operation described above is usually needed, according to Neil W. Swinton writing in *Am. Jour. Surg.* [*82:* 603-610, November (1951)]. D. C. C.

Benign Lymphoma of the Rectum

In *Am. Jour. Surg.* [*82*:611-615 November (1951)] 4 cases of benign lymphomas of the rectum are reported and the literature upon this subject is reviewed by B.

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1. Bowers, W. F.: Chlorophyll in Wound Healing and Suppurative Disease, Am. J. Surg. 73:37, 1947.
2. Niemiro, B. J.: Delayed Healing in Pilonidal Cyst Wounds, Journal Lancet, Sept. 1951.

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F. Sniderman. No conclusions can be reached whether this lesion represents a hyperplasia or a simple tumor. This lesion possesses certain features which may be mistaken for malignancy. Lymphomas are being encountered with increasing frequency, largely because today emphasis is being placed upon the necessity for competent microscopic examination of all tissues surgically removed from the anorectum. D. C. C.

Proctalgia Fugax

Proctalgia fugax is a distinct clinical syndrome of unknown etiology probably caused by spasm of either the internal anal sphincter or the anorectal ring or both. It is characterized by attacks of severe paroxysmal pain localized to the region of these muscles and may be associated with concomitant symptoms such as precordial pressure, pallor, profuse perspiration and transient syncope. Nitroglycerine administered sublingually at the onset of pain may abort an attack in many instances. This disorder is being seen with increased frequency and should be considered in the differential diagnosis of anorectal pain. Joseph D. Karras and Gaspar Angelo report 12 new cases revealing various clinical aspects of proctalgia fugax in *Am. Jour. Surg.* [*82*:616-625 November (1951)]. A possible theory for the pathogenesis of proctalgia fugax may be formulated if its immediate cause is agreed to be muscle spasm in a predisposed patient. The apparent wide diversity of etiologic factors may then be reconciled by assigning them a role as trigger mechanisms that cause spasms of specific anorectal musculature and thus precipitate an attack. D. C. C.

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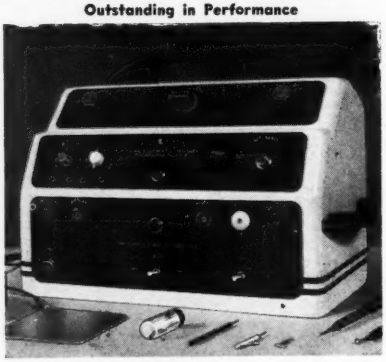

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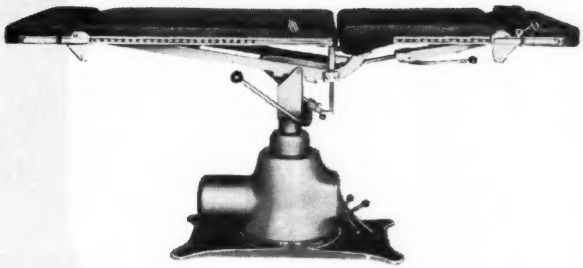

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BOOK REVIEWS

FOR PROCTOLOGISTS

A HANDBOOK OF PSYCHOSOMATIC MEDICINE. With Particular Reference to Intestinal Disorders: By Alfred J. Cantor, M. D., Introduction by Beaumont S. Cornell, M. D., 302 pages. Julian Press, Inc., 1951. Price $5.00.

This unusual text is the first work on Psychosomatic Proctology. The author points out that the physician who treats "disease" without the realization that the "disease" is merely the reaction of the human "body" and "mind" to the presence of a disturbing factor or factors in the internal or external environment of that "body" and "mind" is slowly becoming outdated. The modern physician realizes that the terms "body" and "mind" are artificial separations.

The preface and the first chapter develop the basic concepts of Psychosomatic Medicine.

Dr. Cantor introduces a theory and a method called Silent Level Therapy. By means of guided association analysis the key emotional conflicts producing psychosomatic symptoms are traced and discharged.

This is the first text of its kind to employ the techniques of General Semantics. This chapter alone, describing the meaning and concepts of General Semantics as they apply to proctology, is of immense value.

The author describes Psychosomatic Manifestations of the Upper Gastro-Intestinal Tract briefly, and those of the Colon at length. He includes extensive discussions of Mucous Colitis, Colon Motor Neuroses, Ulcerative Colitis, the Physiology of Defecation, Pathology Subsequent to Psychogenic Constipation or Diarrhea, Pruritus Ani, Foreign Bodies and Rectal Trauma, and Proctalgia Fugax.

There is no doubt that the technique presented in this book will be of benefit to the general practitioner as well as the specialist. It offers an effective tool both for diagnosis and treatment of psychosomatic disorders of the intestinal tract.

The book is well written, and the psychogenic mechanisms are illustrated by interesting diagrams. The concepts introduced are a distinct contribution, and this text should be in the library of every proctologist.

PEPTIC ULCER. Clinical Aspects, Diagnosis, Management. Editor, David J. Sandweiss, M.D. Editorial Committee, A. H. Aaron, M.D., Henry L. Bockus, M.D., George E. Daniels, M.D. George B. Eusterman, M.D., et al. Philadelphia, W. B. Saunders Co., c. 1951. 4to. 790 pages, illustrated. Cloth, $15.00. (Published under the Auspices of the American Gastroenterological Association).

Various members of the Gastroenterological Association pooled their knowledge to bring forth an authoritative work on peptic ulcer. The book is edited by Dr. David J. Sandweiss. Both the clinical aspects and diagnosis are thoroughly covered. The management of peptic ulcer is likewise given a complete explanation.

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(1) Hanson, I. R. and Hingson, R. A., *Current Researches in Anesthesia and Analgesia,* 29:136 (May-June) 1950.

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Bacitracin Ophthalmic (Pfizer) & Bacitracin Topical (Pfizer), Chas. Pfizer & Co., Brooklyn, N. Y. To combat infections of organisms resistant to penicillin. **Dose:** As determined by physician. **Sup:** Topical, in 1/2 oz. tubes; Ophthalmic, in 1/8 oz. tubes.

Banthine Injectable, G. D. Searle & Co., Chicago, Ill. In peptic ulcer patients unable to retain tablets. **Dose:** As determined by physician. **Sup:** In boxes of 6, 25 and 100 ampules.

Bidrolin, Armour Laboratories, Inc., Chicago 11, Ill. In the management of indigestion, constipation and flatulence of biliary origin, in biliary stasis, in maintaining drainage after gallbladder surgery and in noncalculous cholangitis and cholecystitis when the gallbladder is still able to expand; is contraindicated in obstructions of the hepatic or common duct and in severe hepatitis. **Dose:** Two tablets after meals 2 or 3 times daily. **Sup:** In bottles of 100 tablets.

Biphetacel, R. J. Strasenburgh Co., Rochester 14, N. Y. To reduce weight by curbing appetite, also decreases gastric motility, prevents constipation and prolongs emptying time of stomach. **Dose:** One tablet half hour before meals, or as directed by physician. **Sup:** In bottles of 100 and 1,000 tablets.

Cortrophin, Organon, Inc., Orange, N. J. In the treatment of all stressful conditions which respond to ACTH therapy; such conditions as shock, coma, allergic reactions, inflammatory skin and eye diseases, collagen diseases, and ulcerative colitis. **Dose:** As determined by physician. **Sup:** As a dry powder packaged with a 5 cc. vial of solvent—in vials of 25 U.S.P. Units and 40 U.S.P. Units.

Donaseda Elixir and Donaseda Tablets, Ives-Cameron Co., Inc., New York 16 N. Y. In spastic conditions in the gastro-intestinal, biliary, genito-urinary, and bronchial tracts; for the management of the "circling syndrome" of nervous tension, nutritional debility and painful smooth muscle spasm. **Dose:** As determined by physician. **Sup:** Elixir, in bottles of 16 oz.; Tablets, in bottles of 100 tablets.

Dormison Liquid, Schering Corp., Bloomfield, N. J. New dosage form, sedative. **Dose:** As determined by physician. **Sup:** In bottles of 16 oz.

Dramamine Ampuls, G. D. Searle & Co., Chicago 60, Ill. For controlling postoperative nausea and vomiting. **Dose:** As determined by physician. **Sup:** In ampuls containing 250 mg. of Dramamine dissolved in a medium containing 5 per cent of benzyl alcohol, 50 per cent of propylene glycol and water, q.s. in boxes of 6, 25 and 100 ampuls.

Dromoran Hydrobromide 'Roche', Hoffmann-LaRoche, Inc., Nutley 10, N. J. Now available in bottles of 1,000 oral tablets, 5 mg. each. In the control of postoperative pain, the relief of severe and prolonged pain in inoperable cancer and for relief in other serious illness and injuries. **Dose:** As determined by physician. **Sup:** Hypodermic tablets, 5 mg., tubes of 20, bottles of 100 and 1,000; oral tablets, 5 mg., bottles of 25, 100 and 1,000; ampuls, 1 cc., 5 mg., boxes of 12 and 100; multiple-dose 10 cc. vials containing 5 mg. per cc.

Efocaine, E. Fougera & Co., Inc., New York 13, N. Y. Local anesthetic for use in the prolonged management of pain. **Dose:** As determined by physician. **Sup:** In 20 cc. vials.

—Concluded on page 250

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Flo-cillin Aqueous-DS, Bristol Labs., Inc., Syracuse, N. Y. In a new strength. For the simultaneous administration of penicillin and dihydrostreptomycin for action against infections caused by both gram-positive and gram-negative organisms. **Dose:** As determined by physician. **Sup:** In 3 cc. vials, containing 400,000 units of Procaine Penicillin G plus 1.0 gm. Dihydrostreptomycin.

Injection Wyamine Sulfate, Wyeth, Inc., Philadelphia 2, Pa. In myocardial infarction, in hypotension associated with surgical procedures and in hypotension resulting from or occurring during spinal anesthesia. Also of value in management of marked hypotension of medical etiology; after conversion of ventricular tachycardia, in aortic stenosis with congestive failure, and in pulmonary infection. **Dose:** Administered either intravenously or intramuscularly. Amount to be determined by physician. **Sup:** In vials of 1 cc. and 10 cc.

Milibis-Aralen, Winthrop-Stearns, Inc., New York 18, N. Y. For the treatment and prevention of both malaria and amebiasis. **Dose:** As determined by physician. **Sup:** In bottles of 50 and 1,000 tablets.

Noctec, E. R. Squibb & Sons, New York 22, N. Y. Chloral hydrate solution for nocturnal sedation. **Dose:** One to 2 teaspoontuls in 1/4 to 1/2 glass of water 15 to 30 minutes before bedtime. **Sup:** In 1 pt. bottles.

P N S, Winthrop-Stearns, Inc., New York 18, N. Y. A combination of Pontocaine, Neo-Synephrine and Sulfamylon for the treatment of inflammatory rectal conditions, including hemorrhoids, and for application before and after operations. **Dose:** As determined by physician. **Sup:** In boxes of 12 suppositories.

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Pentresamide-250, Sharp & Dohme Co., Philadelphia, Pa. For infections in which the oral administration of penicillin and the sulfonamides is indicated. **Dose:** As determined by physician. **Sup:** In bottles of 60 tablets.

Polymyxin-B Sulfate, Chas. Pfizer & Co., Brooklyn 6, N. Y. Antibiotic. **Dose:** As determined by physician. **Sup:** Parenteral, vial, topical solution, vial and ointment, 1/2 oz. tube.

Prantal Methylsulfate Injection, Schering Corp., Bloomfield, N. J. Anticholinergic agent, in peptic ulcer and other acute conditions associated with hyperacidity or hypermotility of the stomach. **Dose:** Recommended dosage is 0.5 mg./Kg. 4 times daily or adjusted as necessary. **Sup:** In 10 cc. vials in boxes of 1 and 6.

Syncrobin, Schenley Laboratories, Inc., Lawrenceburg, Ind. Injectable form of penicillin-dihydrostreptomycin, 2 new dose forms, cutting in half amount of dihydrostreptomycin sulfate. **Dose:** As determined by physician. **Sup:** In single and 5-dose vials.

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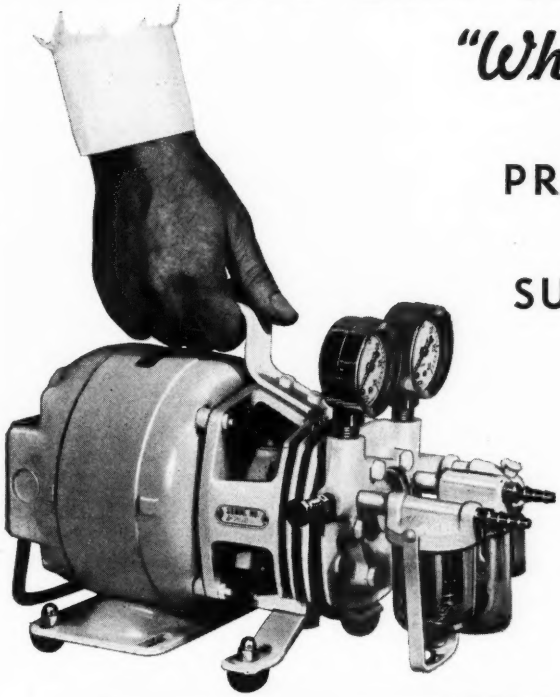

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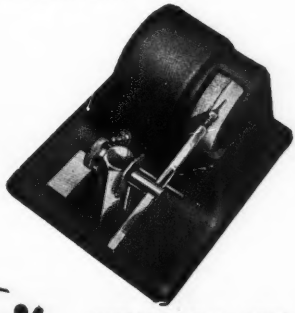

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MAKERS OF PROCTOLOGICAL INSTRUMENTS

LETTERS TO THE EDITOR

—Continued from page 170

of clinically proven cases invariably fixed complement in the presence of lymphogranuloma venereum antigen derived from mouse lung cultures or from yolk sac. The yolk sac culture is superior for sera of lower titer. Phenolized antigens are now considered best for this test. Clinically, the complement fixation test is probably more delicate than the intradermal test. However, the possibility of cross reaction due to the relationship between the "viruses" of lymphogranuloma venereum, psittacosis, trachoma, atypical pneumonia, inclusion blenorrhea, and acute meningopneumonitis must be considered. The clinical differential evaluation of the history in the acute cases should rule out these rare diseases in most instances.

The complement fixation test has been reported 98% positive in clinically proven cases. However, we must always remember that there is a 5% positive reaction in normal persons. Further there may be false positive reactions in late primary and early secondary syphilis. These, however, are non-specific reactions to the normal yolk sac. We should also recall that many patients who have had gonorrhea, chancroid, or acquired syphilis have a positive Frei reaction and a positive complement fixation test. In general, we may conclude that this test is a valuable addition to the diagnostic armamentarium in lymphogranuloma venereum. However, it must always be interpreted in the light of the clinical picture.—Editor.

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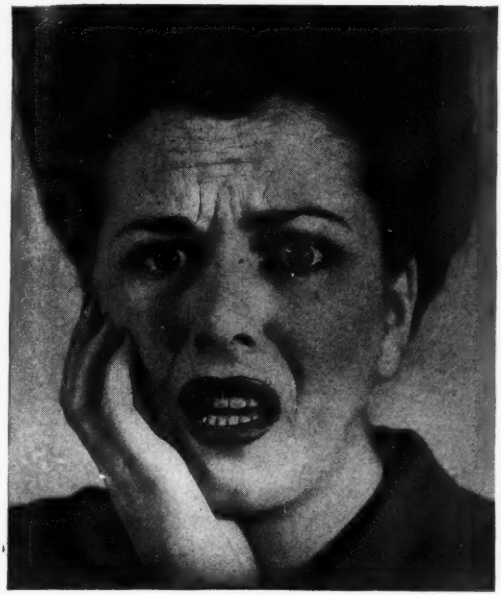

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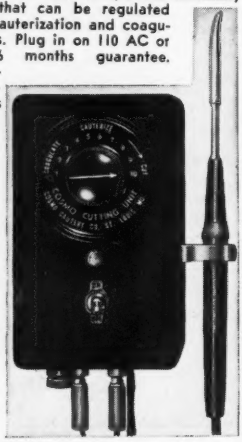

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LETTERS TO THE EDITOR

—Concluded from page 252

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Physicians are invited to submit questions for discussion on clinical handling of proctology problems. The editors will make every effort to find the best thinking on such questions.